JAN 27 1921

The

British Medical Journal

The Journal of the British Medical Association.

INCLUDING AN EPITOME OF CURRENT MEDICAL LITERATURE.

WITH SUPPLEMENT.

No. 3132. SATURDAY, JANUARY 8, 1921. **Price 1/3**

OXFORD MEDICAL PUBLICATIONS

JUST ISSUED.

MEDICAL NOTES.

By Sir THOMAS J. HORDER, M.D.Lond., F.R.C.P.Lond. F'cap. 8vo. Cloth. 6s. net.

THE SCIENCE OF OURSELVES.

By Sir BAMPFYLDE FULLER, K.C.S.I., C.I.E. Demy 8vo. Cloth. Price 16s. net.

HEART DISEASE—GRAPHIC METHODS.

By JOHN HAY, M.D., F.R.C.P. (*Second Edition.*)

Demy 8vo. Cloth. Illustrated. Price 12s. 6d. net.

THE CARE OF HUMAN MACHINERY.

By R. M. WILSON, M.B., Ch.B. Crown 8vo. Cloth. Illustrated. Price 10s. 6d. net.

THE FEEBLENESS OF GROWTH AND CONGENITAL DWARFISM.

By MURK JANSEN, O.B.E., with an Introduction by Sir ROBERT JONES, K.B.E., C.B. Royal 8vo. Cloth. Illustrated. Price 12s. 6d. net.

HENRY FROWDE AND HODDER & STOUGHTON, 17, Warwick Sq., Newgate Street, London, E.C. 4.

NEW BOOK by the Author of "Married Love."

TRUTH ABOUT VENEREAL DISEASE.

BY

MARIE C. STOPES, D.Sc., Ph.D.

2s. 6d. net.

Ready this month.

G. P. PUTNAM'S SONS, LTD., 24, Bedford Street, London, W.C. 2.

SECOND EDITION OF

CECIL WEBB-JOHNSON'S

TWILIGHT SLEEP.

FOREWORD BY

COMYNS BERKELEY, M.C., M.D., F.R.C.P., *Including all the latest work in England on the subject.*

Price 10s. 6d. net.

"The best book on this subject." (*Vide press.*)

BUTTERWORTH & Co., Bell Yard, Temple Bar, London, W.C. 2.

Third Edition, Enlarged. Demy 8vo. 12s. 6d. net. With 38 Original Photographs and 150 Special Prescriptions.

TREATMENT OF

DISEASES OF THE SKIN.

By KNOWSLEY SIBLEY, M.D.Camb.

London: EDWARD ARNOLD, 41 & 43, Maddox St. W.

REGISTERED AS A NEWSPAPER]

NOW READY. 36s. net. Postage 1s. 3d.

FULL OF AFTER-WAR ALTERATIONS.

THE MEDICAL DIRECTORY 1921

Order now and enjoy a full year's Use.

"*As nearly perfect as most human things.*"—THE LANCET.

J. & A. CHURCHILL, 7, Great Marlborough Street, W.1.

J. & A. CHURCHILL'S NEW BOOKS.

KLEEN'S MASSAGE & MEDICAL GYMNASTICS. Trans. by MINA L. DOBBIE, M.D. 2nd Ed., 182 Illus., 32s. net., postage 1s.

GOODHART & STILL'S DISEASES OF CHILDREN. 11th Ed. 60 Illus. 32s. net, post. 1s.

SYNOPSIS OF SURGERY. By IVOR BACK, and A. T. EDWARDS. 15s. net, postage 6d.

J. & A. CHURCHILL, 7, Great Marlborough St., W. 1.

STERILITY IN WOMEN.

By ARTHUR E. GILES, M.D., B.Sc., Ch.B., F.R.C.S., M.R.C.P., Senior Surgeon to the Chelsea Hospital for Women, Gynæcologist to the Prince of Wales's General Hospital, Tottenham.

Demy 8vo. Cloth. 243 pages. Illustrated. Price 10/- net.

"For the General Practitioner this is an ideal book, full of information."—*Medical World.*

"The best that has been written on the subject."—*British Medical Journal.*

HENRY FROWDE, HODDER & STOUGHTON, 17, Warwick Square, Newgate Street, London, E.C.

By the same Author.

DISEASES OF WOMEN.

With Sir JOHN BLAND-SUTTON. 7th Edition. WILLIAM HEINEMANN.

GYNÆCOLOGICAL DIAGNOSIS.

AFTER RESULTS OF ABDOMINAL OPERATIONS.

BAILLIÈRE, TINDALL & COX.

ESSAYS ON THE

SURGERY OF THE TEMPORAL BONE.

By Sir CHARLES BALLANCE, K.C.M.G., C.B., M.V.O., M.S., F.R.C.S., Consulting Surgeon to St. Thomas's Hospital, &c. Illustrated by 125 Plates (40 in colour), and 120 Figures.

In 2 volumes. Medium 4to. Price 5 guineas.

MACMILLAN & Co., LTD., St. Martin's Street, London, W.C.

[COPYRIGHT]

By FREDERICK W. PRICE, M.D., F.R.S.(Edin.), Physician to the Great Northern Central Hospital. Physician to the National Hospital for Diseases of the Heart, London.

DISEASES OF THE HEART.

Their Diagnosis, Prognosis, and Treatment by Modern Methods.

With a Chapter on the Electro-Cardiograph.

Demy 8vo, 484 pp. Very fully Illustrated. 21s. net.

Lancet.—"By great care, and by the use of an amazing amount of material, he has accomplished what many readers have been waiting for, giving us a complete account of the diagnosis, prognosis, and treatment of heart diseases by modern methods in association with all the invaluable teaching bequeathed to us by the older masters of clinical observation."

British Medical Journal.—"The book presents a comprehensive account of modern knowledge of cardiology."

Dublin Medical Journal.—"It is probably destined to take the place in the library of the present day physician that was occupied some twenty or more years ago by Sir W. Broadbent's well-known work."

Midland Medical Review.—"It is impossible to enumerate the many excellencies of this book."

London: HENRY FROWDE AND HODDER & STOUGHTON.

Just Published. Price 8s. 6d. net.

PSYCHOLOGY & PSYCHOTHERAPY.

By WILLIAM BROWN, M.D.(Oxon.) D.Sc.(Lond.) Reader in Psychology in the University of London, Clinical Assistant in Neurology, King's College Hospital, etc.

With Foreword by William Aldren Turner, C.B., M.D.

London: EDWARD ARNOLD, Maddox Street, W. 1.

SECOND EDITION. 15s. net.

BY

HERBERT J. PATERSON,

C.B.E.; M.C., M.B. (Cantab.), F.R.C.S.

THE

SURGERY OF THE STOMACH.

A Hand-book of Diagnosis and Treatment.

"A masterpiece among monographs."—*The Practitioner.*

JAMES NISBET & Co., London, W.

PLASTIC SURGERY OF THE FACE

BY

H. D. GILLIES, C.B.E., F.R.C.S., Major R.A.M.C., *Plastic Surgeon, Queen's Hospital, Sidcup, and Prince of Wales' Hospital, London, N.*

Medium 4to. Cloth. 424 Pages. 844 Illustrations. Price £3 3s. 0d.

HENRY FROWDE AND HODDER & STOUGHTON, 17, Warwick Sq., Newgate Street, London, E.C. 4.

[ISSUED WEEKLY

SCHALL & SON

BRITISH PROPRIETARY (W. E. SCHALL, B.Sc. Lond., F.Inst.P.) BRITISH CAPITAL

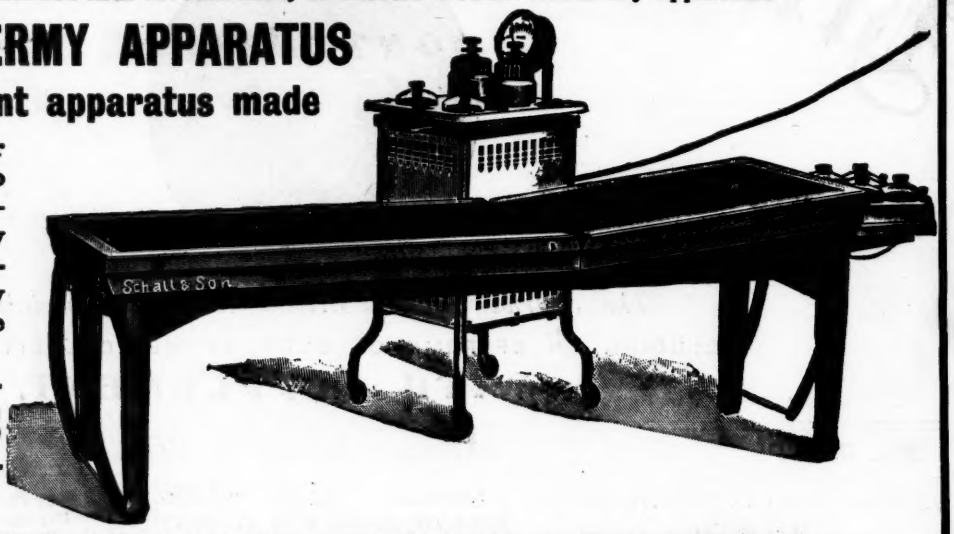
ESTABLISHED 1887

The oldest established firm devoted solely to Electro-medical and X-ray Apparatus.

LARGE DIATHERMY APPARATUS

The most efficient apparatus made

Capable of passing over one ampere hand to hand, and three amperes on a diathermy couch. No other apparatus is sufficiently powerful to operate such a couch.



CYSTOSCOPES

FROM STOCK.

All types of Electro-medical and X-ray Apparatus are manufactured in our Works on the Premises—

71/75, NEW CAVENDISH STREET, LONDON, W. 1.

A large Illustrated Catalogue will be sent free to any Medical Man desiring it.

BELGIAN AGENCY—Maison Wissaert, 9, Rue de l'Hopital, Brussels.

The New Radioscope

For the Perfect X-RAY EXAMINATION of THE HUMAN BODY.

The APPARATUS CAN BE SEEN AT OUR SHOWROOMS AT ANY TIME.

HORIZONTAL.—For General Radiography.

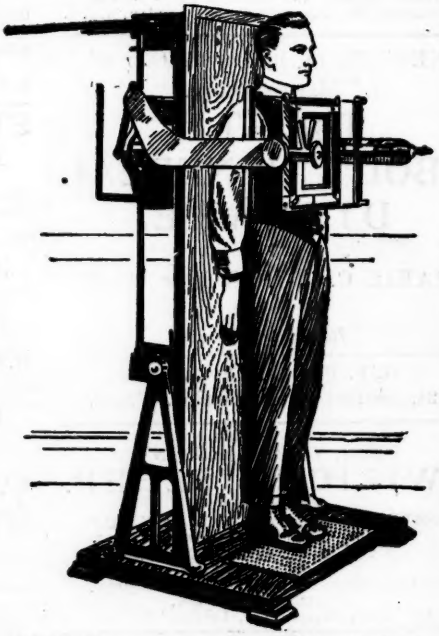
Rectangular Diaphragm.

Ball Bearing throughout.

Good Protection.

Adjustable Plate and Screen Carrier.

All movements made from Control Pillar.



VERTICAL.—For Chest and Bismuth Meal Examinations.

The RADIOSCOPE { **Screening Stand** / **Radiographic Couch** } **£132.**

SAVES MONEY, SPACE, AND TIME.

Send for Catalogue No. 4.

MANUFACTURERS:

THE MEDICAL SUPPLY ASSOCIATION, Ltd., 167/185, Gray's Inn Road, London, W.C.1.

A British Medical Association Lecture

ON THE

LINES OF ADVANCE IN THE SURGERY OF BREAST CANCER.

DELIVERED BEFORE THE SHEFFIELD BRANCH ON OCTOBER 29TH, 1920,

BY

W. SAMPSON HANDLEY, M.S., F.R.C.S.,

SURGEON TO THE MIDDLESEX HOSPITAL AND ITS CANCER CHARITY; HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS OF ENGLAND.

FOR many years after the operation for breast cancer had passed from the primitive stage of "cutting out the lump," its development proceeded by a method of "trial and error." A surgeon by clinical observations of his failures extended the scope of his operation in this or that direction. He then devoted himself to the collection of statistics showing the result of his particular method of operation. It was hoped by a statistical comparison of the results of different operations to arrive at the "best" operation.

There can be no doubt that very considerable advances were in this way realized by American surgeons, culminating in the Halstead operation, which for some years represented the best means for the surgical eradication of breast cancer.

It will be seen that this method largely eliminates the pathologist from the scheme of things. The surgeon "guesses" his method, aided only by clinical observation, and tries it out in comparison with the guesses of other surgeons. In the comparison, statistics necessarily play a dominant part. Now the essential vice of statistics, from which even Professor Karl Pearson has been unable to redeem them, is that they assume the homogeneity of a collection of unlike things. Even granting, however, that statistics will give an accurate idea of the value of a certain operation, it has to be remembered that the possible variations of operative method are infinite in number. They can never all be tried out. Cumbrous and slow in operation, the statistical method leads firmly to an inconclusive result. As Claude Bernard long ago pointed out, statistics are not a weapon of primary importance in the search for truth, though they may supply useful secondary or confirmatory evidence.

Let me illustrate my meaning by a comparison. There are an infinity of possible routes from London to Leicester. To ascertain the best line for a railway between these two places one would not proceed by a comparison of the routes advised by different travellers with statistics of their relative times. The construction of the railway would be preceded and determined by a systematic survey of the country. It may be fairly claimed that in the application of an analogous scientific procedure to the operative treatment of breast cancer this country has led the way. The special need was detailed knowledge of the mode of spread of the disease, only to be obtained by the microscope.

Sir Harold Stiles, the pioneer who first addressed himself to this task, detected cancerous lymphatics widely diffused throughout the breast, which, moreover, he showed to be a much more extensive organ than it had been generally considered. He drew special attention to the necessity of wide removal of the pectoral fascia, while deprecating the removal of an unnecessary amount of skin. In these respects the operation suggested by him and practised by Watson Cheyne from 1892 onwards was much superior to that of Halstead. Subsequent work has required only minor modifications in it.

Stiles was prevented from reaching a general conception of the mode of spread of cancer by the defects of his material, which consisted only of excised breasts. Working on *post-mortem* subjects at the Middlesex Hospital for several years from 1903 onwards I demonstrated the centrifugal spread of breast cancer in the fascial lymphatic plexus, and detected its microscopic growing edge in this plexus at points far removed from the breast—for example, in the deltoid region, or the upper abdominal wall. The only framework which fits the observed facts is the now generally accepted permeation theory, which has replaced the embolic theory of dissemination.

A criterion is thus provided for judging any suggested operation for breast cancer, and the surgery of the disease is placed upon a completer rational basis. Technical variations in the operation, of which many are possible, must conform to the following conditions:

1. The primary growth, from which centrifugal spread begins, must always be the centre of the operation area. Thus an operation for a growth of the inner edge of the breast is not the same as an operation for a growth of the outer edge.
2. A circular area of skin 4 or 5 in. in diameter and centred upon the primary growth requires removal.

Here I may digress a moment to explain that the opinion long held, that cancer spreads along the skin, is shown by pathology to be erroneous. The apparent spread of cancer along the skin is really a punctate spread to the skin at various isolated points from the infected subjacent fascial lymphatic plexus. Since this process is secondary to and later than the spread of permeation in the fascial plexus, it follows that the area of skin infected is small compared with the area of permeation in the deep fascia. The ablation of a very large area of skin is thus shown to be unnecessary, the removal of a large area of fascia essential. I submit, with all respect to Professor Halstead, for whose work and character I have a great admiration, that in these two respects the Halstead operation erred by excess and by defect. For while he removed a large area of skin, Professor Halstead did not fashion skin flaps by undermining so as to ablate a larger area of deep fascia.

3. A circular area of deep fascia 10 or 12 inches in diameter and centred upon the primary growth must be ablated. It is first exposed by raising thin flaps of skin and subcutaneous fat, then surrounded by a ring incision, then elevated all round its edge from the deep parts until the line is reached where muscle also must be removed. The removal of a maximal area of deep fascia is demanded by the presence in this layer of the growing edge of the disease.
4. The removal of deep fascia is often too limited in the epigastric region. I have shown that this region is specially dangerous because here only a layer of fibrous tissue separates the fascial plexus from the subperitoneal fat. It is here that by direct infiltration growth often reaches the peritoneal cavity. In all cases, except perhaps with a growth of the upper edge of the breast, an area of the anterior layer of the sheath of the rectus abdominis requires removal.

Recently I was asked to see a middle-aged lady who, four months after a blow on the breast, was operated on for cancer of the breast. Thirteen months later some small nodules were detected at the lower end of the operation scar. They were excised and *x*-ray treatment was begun. Fourteen months after the second operation she began to suffer from dyspepsia, with pain in the left epigastric region, culminating a fortnight later in vomiting like a bilious attack. These, I may remark, are the symptoms which characterize some of the cases of invasion of the abdomen at the epigastric angle. On examination I found a recurrent nodule, near the scar of the secondary operation in the epigastric region. The left lobe of the liver was palpable and irregularly indurated. It had become infected by contact with the cancerous epigastric peritoneum. There was no other definite evidence of secondary deposits. I believe, therefore, that, had the anterior layer of the rectus sheath in the epigastric region been more widely removed, this lady might still be free of her disease.

Recurrence in the Subclavian Glands.

These glands, I may remind you, more correctly named than the subclavian artery with which they have no relation, lie at the apex of the axilla, below the clavicle, between the subclavius muscle and the upper edge of the pectoralis minor. In front they touch the costo-coracoid membrane which separates them from the great pectoral muscle. On their outer side lies the axillary vein. They may be found infected in breast cancer when the lower axillary glands are still free from disease. This is due to the occasional existence of a lymphatic trunk which passes from the mammary region directly to them through the substance of the great pectoral muscle.

Recurrence in the subclavian glands presents itself in the form of a deep lump situated below the middle of the clavicle, and sometimes apparently adherent to this bone. This form of recurrence is frequent in the practice of surgeons who have not seen the necessity of clearing the axilla up to its extreme apex. In one week recently

I met with two cases of the kind. It is a form of recurrence which can be prevented with almost absolute certainty by careful axillary dissection, and the surgeon who slurs over this part of the operation incurs a heavy responsibility.

Obviously Inadequate Operations.

It is still not uncommon to see cases in which only a portion of the breast has been removed for cancer or in which the axillary dissection has been omitted. Rarely a week passes without a case of this kind coming under observation at my cancer out-patient clinic at the Middlesex Hospital. In some of these cases the lump has been considered innocent and the operator has failed to have it examined. The routine pathological examination of every supposed innocent tumour removed from the breast should never be omitted. Other cases have been in the hands of inexpert or occasional surgeons, who do not realize that the removal of a breast cancer is much more difficult than an appendectomy or the radical cure of a hernia. I venture to suggest that the operation for breast cancer should be left entirely in the hands of hospital surgeons, and that every surgeon who undertakes it should previously study the mode of spread of the disease.

OPERATION RESULTS.

Believing as I do that operation in breast cancer is worth doing to avert the distresses of external ulceration, even though the disease subsequently returns in the internal organs, and believing also that the interests of the individual case in this matter should outweigh the desire of the surgeon for a favourable statistical record, I have not refused operation in any case where I thought I could prolong the patient's life or make her end more comfortable.

Consequently I have no startlingly favourable results to record. Forty-eight per cent. of my cases which could be traced have remained free from recurrence for three years, as compared with 44 per cent. of Judd's and 47 per cent. of Halstead's cases. I may remark that in America cases come to operation earlier than in this country, as shown by the comparatively large percentage of cases without axillary gland enlargement in Halstead's statistics. I estimate that 90 per cent. of the cases of carcinoma which I see already have enlarged axillary glands.

It is when we come to consider the sites of the recurrence that the results become really interesting. A new type of recurrence, to which I have given the name intercostal recurrence, becomes a principal feature of the picture. Associated with this or separate from it, and even more frequently, recurrence in the supraclavicular glands is seen.

The local recurrences in and about the scar, usually multiple, which used to be found in 35 to 50 per cent. of cases of recurrence, have become rare. I confidently appeal for confirmation of this statement to any surgeon present who operates on the lines laid down by the permeation theory of dissemination. Cutaneous recurrences have been reduced to a very low percentage. In half the cases where they have been seen the usual prophylactic course of *x* rays, which I always advise, has for one reason or another been neglected. I have not seen any case of isolated axillary recurrence, nor of recurrence in the situation of the subclavian glands, and only one of recurrence in the remaining clavicular portion of the pectoral muscle. In some cases intrathoracic recurrence or return of the disease in the liver has taken place. In one case the first sign of return was in the femur on the side of the growth.

In a group of 26 cases of recurrence taken from my private notebooks, and including cases of palliative operation, the disease reappeared in the following situations:

Locally (two of these cases had escaped a proper *x*-ray course)	4
Supraclavicular	9
Intercostal	5
Peripheral fascial recurrence	2
Cerebral	1
Thoracic	4
Abdominal	1

Thus the majority of recurrences belong to what may be called (*a*) the supraclavicular, (*b*) the intercostal types. No case of diffuse flap recurrence—the type formerly so common—is noted.

Intercostal Recurrence.

The second common variety of recurrence—intercostal recurrence—is frequent in my experience. I am not acquainted with any precise description of this mode of return.

The first sign of it is the appearance at the inner ends of one or more of the first, second, or third intercostal spaces of small nodules, adherent to the intercostal muscles but not adherent at first to the skin. These nodules are probably an index of retrosternal deposits originating in the anterior mediastinal glands. Later on other similar nodules, also adherent to the intercostal muscles or to the ribs, appear along the first, second, third, fourth, and fifth intercostal spaces as far back as the mid-axillary line. The nodules, as they increase in size, become adherent to the skin and may ulcerate. They are distinguished from cutaneous recurrences by the fact that in their early stages the skin glides freely over them. It is obvious that they indicate lymphatic infection of the intercostal spaces, or of the anterior mediastinal glands, already present at the time of the original operation.

The interpretation of these results seems to be clear enough. The infrequency of local recurrence justifies the pathological principles of the operation. The recurrences take place beyond the range of the operation either in the anterior mediastinal or in the supraclavicular glands, less often in the viscera. It seems reasonable to infer that at the time of the original operation microscopic advance parties of carcinoma cells had already reached these glands.

We must therefore get our cases earlier, and we must devise some means of dealing with supraclavicular and intercostal recurrences either by way of prophylaxis at the time of the first operation, or by way of cure when these concealed dépôts first manifest themselves clinically.

I do not propose to deal to-night with the important matter of the education of the public in the recognition of the early signs of cancer. It would be easy to do too much in this direction and to disturb that sense of practical immortality which is one of the blessings of health in most normal individuals. We do not want to produce an epidemic of cancerphobia. What the public should know might be summed up in a few brief sentences:

After the age of 40 every individual is increasingly liable to cancer. Cancer is insidious in its onset and painless in its early stages. If taken in time, cancer may be cured by operation. If you are over 40, always get a doctor to examine you if you notice a lump or any departure from your normal state of health.

One of the principal obstacles to progress is the belief of the public that cancer cannot exist without pain. Medical men should miss no opportunity of correcting this mistake.

POSSIBLE EXTENSIONS OF THE PRIMARY OPERATION.

It would be quite possible to extend the scope of the original operation so as to include the routine exploration of the anterior mediastinum, and I have done this in six cases, all of which recovered. In only two of these did I find infected glands. In one of these two cases the growth, apparently an early one, was situated near the sternal margin of the breast. Widespread internal recurrence in the thorax took place within six months. In the other case, operated upon more than a year ago and at present free from recurrence, the glands showed irritative hyperplasia and contained a few small groups of epithelial cells.

It would thus appear that anterior mediastinal infection is present at the time of operation only in one case in three. When it is present, operative removal of the glands may fail to anticipate dissemination. For these reasons and because it increases the length and severity of the operation, I have abandoned exploration of the anterior mediastinum. Similar arguments lead me to reject the idea of routine removal of the supraclavicular glands.

Supraclavicular Recurrence.

Recurrence in the posterior triangle first manifests itself in the glands lying immediately above the clavicle and below the posterior belly of the omohyoid muscle. In examining the triangle special attention must be given to the angle between the clavicle and the posterior edge of the sterno-mastoid. Here on deep pressure an enlarged gland is often found lying in close contact with the subclavian artery. Infection of the supraclavicular glands takes place along the efferent lymphatics from the glands at the apex of the axilla, from the subclavian glands, and

sometimes from the anterior mediastinal glands. The subclavian group of glands might with advantage be renamed the infraclavicular glands. They lie, of course, behind the costo-coracoid membrane. When the supraclavicular glands are once infected, extension by permeation may take place along any of the trunks—afferent or efferent—connected with them.

According to Poirier and Charpy their lymph-vascular connexions may thus be classified:

Afferent Vessels.—(1) From the posterior part of the scalp, and the skin and muscles of the nuchal region; (2) from the skin of the pectoral region, or even from the mammary integument; (3) lymphatics accompanying the cephalic vein, which skip over the infraclavicular glands in which they should normally terminate; (4) from the axillary glands, especially from the humeral chain; (5) from the cervical portions of the larynx, trachea, and oesophagus; (6) from the pretracheal glands of the neck; (7) aberrant vessels of the internal mammary chain which normally discharge into the great veins; (8) occasionally from the chain of glands lying along the external jugular vein; (9) from the small glands lying in the thorax which accompany the recurrent laryngeal nerves.

Efferent Vessels.—These unite with the efferents of the sterno-mastoid glands to form a common trunk, the jugular trunk which joins the confluence of the internal jugular and subclavian veins.

It will be seen from the foregoing account that cancer cells which have reached the supraclavicular glands have attained a favourable strategic position for the extension of their attack on the body in various directions. They frequently penetrate to the external jugular and the occipital glands, and the union of the efferent trunks from the supraclavicular and the sterno-mastoid glands affords opportunities for the invasion of the latter set of glands which lie along and external to the internal jugular vein. Supraclavicular infection thus is the precursor of wide infection of the neck, and even of the cranial cavity.

In regard to the thorax the position is less unfavourable. It seems doubtful whether any direct vascular connexion exists between the pretracheal glands of the thorax and the supraclavicular glands. In many cases the pretracheal efferent trunks discharge directly into the great veins, and the avenue of permeation into them is thus cut off. It would seem that the only constant lymph-vascular connexion of the supraclavicular glands with the thorax is by way of the efferents of the small recurrent laryngeal chain of glands. This conclusion is an important one, for it justifies the hope that, as experience has now shown, a vigorous attack on enlarged supraclavicular glands may anticipate and prevent invasion of the thorax. If, however, periglandular infiltration with fixation of the enlarged glands has taken place, it is likely that infiltration of the dome of the closely adjacent pleura has occurred, and in such cases operation is useless.

The definite break in the continuity of the permeation channels imposed by the separate termination in the great veins of the lymphatics of the neck and of the thorax respectively is, as we have seen, a great encouragement to the surgeon who contemplates an attack upon supraclavicular glands. The complexity and extent of their lymph-vascular connexions in the neck is a factor which at first sight seems very unfavourable to operation. But all the glands in the posterior triangle are within operative reach, and so, too, are the deep or internal jugular glands. Acting on the advice of the late Sir Henry Butlin, I have for some years made it a rule in cases of infected supraclavicular glands to perform a complete lymphatic dissection of the posterior triangle, including also the internal jugular glands. The glands are removed in one piece still embedded in the connective tissue, and therefore with all their lymph-vascular connexions intact.

Treatment of Supraclavicular Recurrence.

There can be no doubt that the right treatment of supraclavicular recurrence in its earlier stages is operative. The operation must, however, be a very thorough and systematic one. On the other hand, it is futile to attempt the operative treatment of late cases of supraclavicular recurrence, where the growth has infiltrated the gland capsule and has passed into the surrounding tissues.

Broadly speaking, if the glands are mobile they should be operated upon; if they are fixed they should be left alone. But if the only fixed gland is situated at the lower and inner angle of the posterior triangle it is sometimes worth while attempting to enucleate it, and if the attempt is successful and a tube of radium is introduced into the bed from which it came, a long period of freedom from recurrence may be secured, provided at the same time all the glands in the posterior triangle are removed.

The use of radium in the operation wound should never be omitted in any operation for supraclavicular glands. It minimizes the great risk of these operations, namely, that of general implantation of carcinoma cells on the raw surface and the subsequent development of a general boardlike carcinomatous infiltration of the field of operation—an unfortunate result which may follow operation in too late a stage.

The boundary line between the operable and inoperable cases, though broadly fixed by the mobility or fixity of the glands, has been pushed forward definitely by the use of radium tubes in the operation wound. In doubtful cases the decision should now be for operation, instead of, as formerly, against it.

It must be borne in mind that subsequent recurrence, say, in the thorax, does not necessarily imply the failure of the operation. Besides its main object, the eradication of the disease, it has an important secondary object—namely, to avert the agonizing brachial neuralgia which is so often seen in the later stages of supraclavicular recurrence. If this object is attained the operation has justified itself, even if the patient dies of some other manifestation of cancer.

The question arises, therefore, whether operation on enlarged supraclavicular glands should be undertaken even in cases where other secondary deposits are known to exist. As a rule this question must be answered in the negative, for in such cases the period of survival is likely to be a short one, and death may occur before pressure on the brachial plexus has had time to develop. It seems better in such cases merely to attempt to delay the development of the supraclavicular deposits by the use of buried radium.

Radiation in the Treatment of Breast Cancer.

In a disease which has such wide-spreading microscopic manifestations as breast cancer, surgical extirpation, though it remains our best resource, is evidently a clumsy weapon. It has for some years been supplemented by post-operative radiation by *x* rays. For the past fifteen years I have uniformly advised post-operative radiation, and my experience shows that cutaneous and subcutaneous recurrence is more likely to occur in cases which have escaped, for one reason or other, this prophylactic course. My practice has been to advise only a short course followed after an interval by a second course.

It is now known with certainty that by an adequate dose of radiation a mass of cancer cells can be killed, and the idea which has hitherto for the most part governed the use of radiation is the destruction of any groups of cancer cells remaining after the operation.

It would of course be preferable, instead of destroying the seed so to alter the soil as to make its growth impossible—in other words, to immunize the patient against his own cancer. For a long time I was sceptical as to this possibility, for whereas in the older parts of a breast cancer degenerate malignant cells enveloped by round cells or by fibrous tissue are normally found in large numbers, at the actual growing edge of the disease there is no round-celled infiltration. Here the healthy active cancer cells have excited no visible reaction and they appear to be accepted as normal denizens of the body. I inferred a close family likeness between the cancer cell and the normal epithelial cell which rendered unlikely the success of attempts to produce immunity against the cancer cell.

It remains a fact that no marked success has attended attempts to induce immunity in an animal against its own spontaneously occurring growth. Nevertheless, the aspect of the problem has lately become more hopeful, largely owing to the work of Professor Russ and his fellow-workers in the Middlesex Hospital Cancer Research Laboratories. Starting with the idea that the tumour substance itself removed, suitably irradiated, and then inoculated might prove to be an immunizing agent, Russ inoculated the irradiated tumour substance. Subsequently in a large percentage of cases the animal is found to be immune to a further inoculation of the active virulent tumour substance, which in a control animal would give rise to a large tumour. These results apply to mouse carcinoma and rat sarcoma.

In addition to his studies of the effect of radiation on tumour cells, Professor Russ is studying the action of radiation upon the response of normal tissues to tumour growth. He finds that if in a number of susceptible rats destined to be inoculated with rat sarcoma some of the animals are previously given repeated very small doses of *x* rays, this group becomes much less susceptible to the disease. If, however, immunized animals be given large doses of *x* rays their resistance is broken down and the animals, when reinoculated, bear growing tumours.

It would thus appear that the future of cancer therapy, in the breast and elsewhere, is bound up with a close study of the effects of different varieties of radiation. And since the effects may be harmful or beneficial according to the dose, the radiation must be employed in suitable and accurately measured doses. In using radiation for its destructive effect upon cancerous foci, we must be on our guard against at the same time lowering the general resistance of the body to the disease.

The use of radium in breast cancer has perhaps never, apart from operation, resulted in the cure of the disease, and when it is applied to the surface of the skin the maximum dose which the normal skin will tolerate is too small to deal effectively with any but immediately subcutaneous deposits. When a tube of radium is buried in the connective tissues, and at least half an inch away from the skin, a much larger dose can be given, and a 50 or even 100 mg. tube screened with 1 mm. of platinum can often safely be left *in situ* for twenty-four hours. Under these circumstances, and within a range of one or two inches, the local effectiveness of radium in destroying carcinoma cells greatly exceeds that of the hard *x* rays which are its chief competitor. On the other hand, with the amounts of radium at present available, it is difficult or impossible to irradiate the whole of the extensive area, a circle ten or twelve inches in radius centred upon the primary growth, within which recurrence may take place. The peculiar advantage of radium when used in the most effective manner—by burying the tube in the tissues—is its intensive action. The peculiar advantage of *x* rays is their extensive action.

These considerations serve to map out broadly the respective spheres of these two methods of irradiation which can often be used effectively in combination. *X* rays are specially suitable for prophylactic irradiation covering a wide area, or for the treatment of multiple scattered deposits in the parietes. Radium should be chosen in preference if the recurrence is single or if nodules are only present in one or several limited areas. Radium should certainly be preferred to *x* rays provided that the affected area is not too large to be dealt with, for I have frequently seen deposits refractory to *x* rays rapidly disappear under radium.

An effective prophylactic application of radium is after the excision of enlarged supraclavicular glands or the excision of an isolated recurrence wherever situated. A tube of radium is left in the wound, suitably screened, with special care to protect the skin flap from undue action. The risk of implantation recurrence is thus minimized and remaining groups of microscopic cancer cells are exposed to the full force of the radiation.

The beneficial action of radium is not confined to its destructive effect upon carcinoma cells. It appears to have a special anodyne effect, and it sometimes relieves pain in cases of cancer where its effect upon the growth itself is small.

There are striking differences in the vulnerability of carcinomata to radium. Some of them yield rapidly, others are refractory. It should be remembered that some growths have a special tendency to cell degeneration, entirely apart from treatment, while in others most of the malignant cells are vigorous. Thus great variations in vulnerability are to be expected.

It must not be forgotten that small doses of radium stimulate cell activity and mitosis. There is here a distinct danger, for while the cells near the radium tube may be destroyed, more distant ones may assume increased activity. Thus the ideal method of applying radium would be similar to that adopted in the pursuit of big game—namely, to corral the game in a continually narrowing ring of beaters. In other words, if an area can be defined within which the malignant cells are known to be concentrated this area should be attacked by radium from its periphery towards its centre. It seems to the writer that this principle, though difficult to apply, may prove to be a practically valuable one.

I have never seen evidence in breast carcinoma of any beneficial action of radium on deposits at a distance from the site of application. Such phenomena are occasionally seen in lympho-sarcoma, but I am inclined to think that the action in breast cancer is a purely local one.

With all its limitations radium has secured a definite position in the treatment of breast cancer. It relieves or postpones pain and disability, it prolongs life, and it often substitutes a painless *exitus* from internal recurrence for the distresses associated with ulcerated external recurrences, or the agony of enlarged glands pressing on the brachial plexus. In the case of single recurrences it may presumably complete the cure of the disease.

In favourable cases, and where if necessary the application is repeated, life may be lengthened by three years or more, and the patient enabled to live during this period an almost normal social existence.

The following cases illustrate the use of radium in recurrent breast cancer.

CASE I.—*Carcinoma of Breast: Operation: Recurrence in Supraclavicular Glands: Excision of Glands, Radium Buried in Wound: No Recurrence Eight Years Later.*

In 1912 I was asked by a London surgeon to see his mother, then aged 79, for a carcinoma of the left breast. The growth was removed under nitrous oxide anaesthesia supplemented by ether. I saw her again in December, 1913. She was in excellent general condition and could walk a mile, but in the angle behind the sterno-mastoid and the clavicle on the left side there was a fixed mass, evidently glandular. A further operation was undertaken on December 16th, 1913, and the glands were cleared out of the posterior triangle as high as the spinal accessory nerve. The carotid sheath was opened and the glands within it cleared out. The apparently fixed mass shelled out fairly easily from behing the sterno-clavicular joint, leaving a cavity large enough for the insertion of a finger. Higher up were enlarged glands deeply pigmented by carbon, and above these again were the normal glands of the carotid sheath. A tube of radium emanation was left in the cavity for twenty-four hours. At the present time, eight years after the first operation, this old lady remains well and free from recurrence.

CASE II. — *Recurrent Carcinoma: Survival Estimated at a Few Months: Repeated Radium Treatment with Uniform Local Success: Patient still Living an Active Life Two and a Half Years Later: Survival for Nearly Three Years.*

Mrs. O., aged now about 60, was operated upon at the end of 1912 by a well known surgeon in Edinburgh for carcinoma of the left breast, first noticed in the previous May. A guarded prognosis was given. In May, 1917, a small blood cyst formed at the middle of the scar and burst, leaving a deep ulcerated cleft. Dr. Mackenzie of Bath recommended a trial of radium, but the surgeon who had operated discountenanced its use, and gave her but a few months to live. At this juncture, in May, 1917, I first saw the case with Professor A. M. Stalker of Aberdeen. There was at this time a recurrence 1½ in. in diameter fixed to the sternum, with enlarged left supraclavicular glands and an ulcerated nodular thickening of the scar, opposite the seventh rib. Two 50 mg. tubes of radium were inserted beneath the sternal nodule, one of 100 mg. in the left supraclavicular region, and one of 50 mg. in the nodule near the seventh rib. The screen was 1 mm. platinum and the period twenty-four hours. In August, 1917, the patient was feeling and looking well, and the only remaining palpable recurrence was a gland above the left clavicle.

As will appear, the subsequent history of this patient to date (January, 1920) is one of centrifugally spreading recurrences yielding rapidly and completely to further applications of radium. Seven applications in all have been made.

In October, 1917, at Harrogate, a tube of radium was buried above the left clavicle, and one in a new nodular thickening close to the seventh rib. All the winter of 1917 the patient was "most comfortable," and lived an ordinary life as much as possible in the open air. Professor Stalker reported in March, 1918: "There are two or three small glands, less than a pea in size, in the axilla. There is some infiltration in the left supraclavicular region, into which you introduced the radium to begin with. This is the spot which I fear most." Nevertheless, in December, 1918, the patient was "wonderfully well." In March, 1919, Professor Stalker found indications of spread in one or two directions. The ulcer near the seventh rib, though quiescent, never completely healed, and some nodules appeared external to it. In May, 1919, tubes were buried in the right supraclavicular triangle (100 mg.) where a fixed mass of glands had appeared, and the right edge of the sternum, where there was a suspicious thickening, and one in the nodules near the seventh rib. The screen was 1 mm., the time twenty-four hours. This application was followed by severe neuralgic pain down the right arm, which took several months to subside, and left some permanent weakness of the muscles of the hand. The neuralgic pain was probably due to the contraction of a neoplastic mass adherent to the brachial plexus. As before, the treated nodules disappeared within two months of the

irradiation, and even before she left London—that is, three weeks after the application—the supraclavicular lump had shrunk to half its original size, the ulcerated patch had improved considerably, and the sternal thickening could not be felt. A skiagram taken in Bath in 1918 showed suspicious thickening of the root of the left lung, and I was not at all sanguine as to the future. In August, 1919, a small nodule appeared below the right clavicle. In October, 1919, the patient was sleeping wonderfully well, but after a severe cold Dr. Stalker detected some dullness at the left base.

On November 1st, 1919, I saw this patient at her home in Scotland. About three weeks previously she had had a bronchitic attack, with pain at the base of the left pleura, and here a little fluid was present. Her general condition previous to this attack had been so good that she was driving out daily, sometimes in an open vehicle. She was sleeping well and was free from pain. On the left side of the chest—that originally affected—no overt sign of malignant disease remained. In the left supraclavicular triangle and the left axilla no glands could be felt, though above the clavicle large glands had been present prior to the radium treatment. The ulcer, with surrounding nodular deposits, though still open, had partly healed, and was quite flat and innocent as to its base and surroundings. No trace of the original large sternal swelling remained. On the right side, however, though the intercostal deposits in the second and third spaces had disappeared, the disease had made progress under the right breast. Here a large mass was present, with a smaller one in the upper and outer quadrant. The large fixed gland in the lower and inner angle of the posterior triangle—treated six months previously—had disappeared. Over the middle of the right clavicle one small nodule had appeared. The whole right breast was heavy from lymphatic oedema and the nipple swollen. There was some fullness over the lower part of the sternum never noticed before. Radium, 1 mm. screen, for twenty hours was introduced—100, 50, 10, and 10 mg. in various situations beneath the right breast, 10 and 10 mg. at the right edge of the sternum, 10 mg. in the nodule beneath the clavicle.

Though the dullness at the left base was very suspicious, the general condition was excellent, the patient cheerful, and her colour good. The lymphatic oedema of the breast rapidly subsided. In January, 1920, the patient was sufficiently well to travel to Bath and to come down regularly to the family dinner. While at Bath sternal swelling recurred and the right breast became oedematous. A further dose of radium repressed these external manifestations, but signs of rapid pulmonary involvement, with dyspnoea and increasing dullness at the left base, showed that the end was approaching. In April, 1920, she returned to Scotland. Temporary improvement followed, but she died early in May, 1920.

She certainly owes to radium more than two additional years of comfortable and even enjoyable existence, though the treatment was begun when she had been given only a few months to live. *X*-ray and open-air treatment were used throughout as adjuvants.

CASE III.—*Recurrence after Operation for Carcinoma Mammae: Radium, X-Ray, and Operative Treatment: Three Years Later no Sign of Active Disease.*

In September, 1916, I operated on Mrs. D., aged 60, for a rather advanced carcinoma of the upper and outer quadrant of the right breast. A section confirmed the diagnosis. She subsequently had *x*-ray treatment by Dr. Prowse of Brighton. In March, 1917, she developed a thickening, soon becoming definitely nodular, over the sixth right costal cartilage. Another nodule appeared higher up at the edge of the sternum. The nodules disappeared completely after the insertion in June, 1917, at the site of each for twelve hours, of a 50 mg. tube of radium with a 1 mm. platinum screen. In September, 1917, there was some general swelling of the arm, but not to a serious extent. In October, 1917, Mr. T. H. Ionides of Brighton detected a lump at the outer edge of the right latissimus dorsi. *X* rays failed to reduce this nodule, and I excised it. A section showed degenerate but still living carcinoma cells. All this time the patient's general health was good and she had very little pain. In July, 1918, a lump appeared in the right supraclavicular region, and this was successfully treated by burying a tube of radium. In December, 1918, a skiagram of the chest by Dr. Prowse showed no sign of secondary deposit. Her husband wrote that she "seems wonderfully well and certainly looks it." The slight swelling of the arm continued much as it was, with variations from time to time. Up to November, 1920, this lady had developed no fresh signs or symptoms. Thus three and a half years after the first recurrence the disease remains in abeyance, and meantime the patient has lived a comfortable and almost normal life.

CASE IV.—*Supraclavicular Recurrence Successfully Treated by Operation and Radium: Death from Thoracic Deposits.*

Mrs. H., aged 59, was sent to me by Dr. Simson, of Grosvenor Street, in January, 1914. In the previous year another surgeon had removed a carcinoma from the left breast. She now had enlarged glands in the left posterior triangle, which upon removal on January 4th, 1914, were found to be carcinomatous. In April, 1914, her general condition was satisfactory and she was free from pain, but two or three small nodular recurrences were present in the posterior inferior angle of the posterior triangle. They were treated by burying a tube of radium. Radium treatment was repeated in 1914, and in November, 1914, the nodules had disappeared. About this time she had developed bronchial symptoms, and she shortly afterwards died with thoracic recurrence. In this case radium combined with operation probably averted pressure upon the brachial plexus and thus made the patient's end a comparatively easy one.

CASE V.—*Recurrence in the Left Supraclavicular Glands: Excision and Radium Treatment: Rapid Recurrence at the Base of the Left Pleura.*

Mrs. H., aged about 45, was sent to me in 1916 by Dr. Hobart of Cork. The left breast had been removed for carcinoma in 1914. The left supraclavicular glands were hard and enlarged. There was no other sign of recurrence. I excised the glands, leaving a tube of radium in the wound for twenty-four hours. Three months later there was evidence of pleural growth at the base of the left lung, and the patient did not long survive. There is, however, reason to think that the operation saved her from nerve pressure upon the brachial plexus. This case illustrates the disappointments that may be met with in the treatment of recurrence, and shows that an *x*-ray examination of the chest should always precede operation in such cases.

CASE VI.—*Intercostal and Supraclavicular Recurrences Suppressed by Radium: Later Signs of Thoracic Metastases.*

A. B., aged 55, was operated upon by me for cancer of the left breast in August, 1915. In December, 1917, a lump appeared in the second left intercostal space, but she ignored it until March, 1919. In April, 1919, two 50 mg. tubes of radium were introduced into the first and second space, and by June 16th the lump had disappeared. In October, 1919, there was no return, but slight prominence and tenderness had appeared over the right half of the first piece of the sternum and radium tubes were introduced here. In November, 1919, the patient came up stating that she had never been so well before, but on examination two hard glands were felt in the left supraclavicular triangle. On January 1st, 1920, four tubes of radium, 200 mg. in all, were introduced into the left supraclavicular triangle, the left axilla, and the right sternal region. On March 3rd, 1920, no glands whatever could be felt, but there was shortness of breath and some dullness at the left base; probably there is infection of the lungs and pleural cavity and the patient's days are numbered. But radium has kept her comfortable almost to the end and has given her an extra year of enjoyable life.

CASE VII.—*Intercostal Recurrence: Improvement under Radium Transient.*

C. A., aged 68, was operated upon for carcinoma of the right breast at St. George's Hospital in 1917. In March, 1919, she attended the Middlesex Hospital for a recurrent fluctuating mass with reddened skin at the inner end of the fourth right intercostal space. It was incised, but no pus escaped, and was evidently a mass of degenerate growth. She was admitted for radium treatment, and in June, 1919, only a thick scar remained at the site of the lump. In October, 1919, the lump was again increasing, and there was vague induration of the left breast and enlargement of a left axillary gland.

CASE VIII.—*Intercostal Recurrence: Radium Treatment: Relapse after Great Initial Improvement.*

Kate G., aged 59, was operated upon in January, 1913, for carcinoma of the left breast. In March, 1914, a swelling was noticed over the manubrium. In June, 1914, two 50 mg. radium tubes with ½ mm. screens were inserted for twenty-four hours. A second application was given in November, 1914. In December, 1914, the lump over the sternum had disappeared except for one slight local thickening. In February, 1915, there was no sign of growth, but in May, 1915, there was some thickening at the left margin of the sternum. The patient shortly afterwards ceased to attend.

CASE IX.—*Late Intercostal Recurrence: Successful Treatment by Radium: Patient Well Two Years Later.*

A. L., aged 58, was operated upon in 1906 by Sir A. Pearce Gould for carcinoma of the left breast. She remained well until September, 1918, when a lump appeared at the inner end of the second left intercostal space. It was a fixed induration adherent to the bones. On November 23rd, 1918, a 50 mg. tube of radium with 1 mm. platinum screen was buried under the lump for twenty-four hours. On December 1st the lump was much smaller, and on April 9th, 1919, no trace of a lump could be detected. In January, 1920, there was no trace of a return of the lump, but a suspicious fullness was present over the inner end of the first space. In March, 1920, tubes of radium were buried at the inner end of the first and third spaces in order to anticipate events. Patient remains well (June, 1920).

This case goes to show that the later the time at which the recurrence first appears the more likely is it to be amenable to radio-therapy. This impression cannot yet be submitted to a statistical test.

CASE X.—*Intercostal Recurrence Seven Years after Primary Operation: Disappearance under Radium.*

A. G., aged 52, attended at the Middlesex Hospital in February, 1920, for a fixed intercostal recurrence in the second left space. The left breast had been removed for carcinoma seven years previously. After radium treatment the sternal recurrence completely disappeared, but an enlarged gland could now be felt in the lower and inner angle of the left posterior triangle.

CASE XI.—*Intercostal Recurrence Refractory to Radium Treatment.*

Emma M. in June, 1916, was operated upon for carcinoma of the right breast. She attended the Middlesex Hospital in July, 1917, for a typical intercostal recurrence in the first right space. Two 50 mg. tubes of radium with ½ mm. screens were introduced into the lump on November 7th. In the following January no diminution in the lump had occurred, and in February the lump involved the second space as well as the first, and recourse to sedatives was necessary.

This case suggests that results are better with a 1 mm. screen than with a thinner screen, a suggestion borne out by my experience in other cases.

CASE XII.—*Intercostal Recurrence One Year after Operation: Treatment by Secondary X Rays: Patient still Well, Ten Years after First Operation.*

Mrs D., aged 61, noticed in 1909 a small kernel in her right breast. She consulted me in March, 1911. A lump 1¼ in. in diameter, adherent to the fascia, was present in the upper and inner quadrant of the right breast. The glands in both axillae were enlarged, especially those on the right side. The growth proved to be a cellular one of duct origin, and many of the epithelial masses showed central degeneration. Prophylactic *x* rays were given after the operation. In May, 1912, nodules were noticed in the second, third, and fourth right intercostal spaces at their inner ends, and one or two nodules further out along the intercostal spaces. Bismuth carbonate injections were made at the inner ends of the affected intercostal spaces, and subsequently another course of *x* rays was given. The patient followed my advice to live an open-air life. By September, 1912, no trace of the nodules remained. One doubtful nodule was felt over the upper end of the sternum, and here and in the fifth intercostal space, where a slight thickening remained, bismuth was again injected. The *x* rays were continued.

There was no doubt of the recurrence, for the nodules were definite and rounded. At the present time (January, 1920) there is no trace of them, and the patient remains well. In 1918 she had some enlargement of the *left* axillary and supraclavicular glands, but this has subsided under *x* rays. The method of secondary *x* rays employed in this case has been superseded by the use of radium.

CASE XIII.—*Intercostal Recurrence Five Years after Operation for Breast Cancer: Radium Treatment; Patient Well nearly Two Years Later.*

Mrs. S., aged 28, noticed early in January, 1912, a lump in the left breast. She consulted me on January 18th, 1912. There was no skin adhesion but some fascial fixation, and very marked mastitis in the right breast. Preliminary exploration showed that the tissue looked like mastitis, but immediate examination showed it to be malignant. The great pectoral was removed except uppermost clavicular fibres, and the lesser pectoral and serratus left. The supraclavicular region was not explored. A small piece removed from the right breast was innocent chronic mastitis. Prophylactic *x* rays were given after the operation. In October, 1912, there was no sign of recurrence whatsoever and perfect mobility. The patient, who was a keen sportswoman, played golf during the summer, and won two medals within six or seven months of the date of operation. In 1917 there was a tiny lump at the junction of the upper border of the left second costal cartilage with the sternum, and the patient was given another course of *x* rays. In December, 1918, there were two small recurrences in the second and third left intercostal spaces. The patient had been doing very hard muscular work which may have predisposed her to these. I removed the recurrence in the second space and had it microscopically examined. I put in two tubes of radium, one in each space, and a week after the nodule in the third space had disappeared.

At the present time (October, 1920) there is no recurrence, and the patient looks well.

Question of Treating Operable Breast Cancer by Radiation.

I have met with one case in which a persistent effort was made to treat a carcinoma of the breast by *x* rays without operation.

CASE XIV.—*Operable Cancer Unsuccessfully Treated by X Rays.*

Mrs. A. noticed a lump in the left breast in 1913. In the summer of 1916 she consulted a medical man who has had extensive experience in *x* rays, and who made a diagnosis of cystic disease of the breast. *X* rays were applied to the breast on fourteen occasions. The lump became smaller and a pucker appeared on the skin. The patient was thereupon advised to consult me. I saw her in January, 1917, and found a puckered scar over the upper and outer quadrant with slight subjacent induration. There was no adhesion to fascia, and no glands were felt. Section after operation showed a carcinoma. The epithelial cells were in small groups and many of them were degenerate. The glands were unaffected.

Apparently in this case the radiation exerted a deterring and delaying effect on the growth, and perhaps prevented its spread to the axillary glands, but there was no evidence of cure. The history of this case goes to justify the belief usually held that operable cancer should not be treated by radiation only. The exceptions to this rule are (1) if the patient refuses operation; (2) in old and feeble subjects with atrophic cancers; (3) grave constitutional disease—for example, cardiac or renal disease or diabetes.

Treatment of Inoperable Primary Growths by Radium.

In cases where operation is excluded by the advanced stage of the growth, age, or constitutional disease, much benefit may be derived from the use of buried radium. The primary growth may even completely disappear, or short of this ulceration may be averted, a very great gain to the patient's mental and bodily comfort. So far, however, there is no proof that by the imperfect methods at present in use the spread of the disease is arrested.

The following cases illustrate the treatment of inoperable growths by radium:

CASE XV.—*Advanced Primary Growth of Breast: Great Local Improvement after Radium.*

A. H., aged 37, attended the Middlesex Hospital in December, 1914. The whole of the right breast was infiltrated by carcinoma and firmly adherent to the chest wall. There were very numerous nodules around the breast, and especially on the outer side. A mass of enlarged glands was present in the axilla and just above the clavicle. On December 9th, 1914, four tubes of radium, 187 mg. in all, were inserted into the right breast for twenty-four hours. On January 26th, 1915, the infiltration of the breast had almost disappeared and the organ had become freely movable; the nodules also were shrunken. Two slight areas of radium dermatitis were present over the sites of the insertion of the tubes. The patient ceased to attend.

CASE XVI.—*Inoperable Cancer of the Breast Treated by Radium: Marked Local Improvement, but Continued Centrifugal Spread.*

M. A. S., aged 49, attended the Middlesex Hospital in November, 1916, with an ulcerated mass in the lower part of the right breast and universal induration of the breast. There were hard glands in the axilla. In December, 1916, radium was inserted into the axilla and breast. The glands disappeared within a month, and the upper part of the breast was soft and slack. Growth reappeared in the supraclavicular region, and in January, 1917, extensive nodular skin deposits were present around the breast. Further treatment was deemed useless.

This case well illustrates the usual history of carcinomata of the breast treated by radium alone. There is marked local improvement, but the centrifugal spread of the disease continues unaffected. Such cases appear to show that, if possible, treatment by radium should be applied first to the peripheral growing edge, and later in a centripetal manner to the primary growth. But the practical difficulties involved are great.

CASE XVII.—*Inoperable Carcinoma of the Left Breast: Radium Treatment: Disappearance of the Primary Growth, but Extension of Growth in the Glands of the Axilla and Neck in spite of X Rays.*

A. A., aged 61, attended the Middlesex Hospital in July, 1915, for a lump in the axillary margin of the left breast. The skin was adherent and the supraclavicular glands on the left side were much enlarged. Treatment by buried radium. In October, 1915, the supraclavicular glands were palpable and hard, but not enlarged, the primary tumour had disappeared, leaving only a vague induration. In December, 1915, no lump whatever could be felt in the breast. In April, 1917, the primary growth had not recurred, and there was merely an adherent scar, but there were large masses of nodular glands in the axilla and above the clavicle. *X*-ray treatment was being continued.

This interesting case illustrates that the complete disappearance of the primary growth does not mean the arrest of the disease. I have seen the same thing happen after radium treatment of carcinoma of the lip—complete cicatrization of the primary growth, and later the appearance of a mass of secondary glands.

CASE XVIII.—*Disappearance of Primary Growth under Radium.*

Mary W., aged 49, attended the Middlesex Hospital in February, 1916, for a cancer occupying the centre of the left breast. Radium was inserted on February 29th, and on March 29th the growth had almost entirely disappeared, though glands could still be felt in the left axilla. The patient was subsequently lost sight of.

CASE XIX.—*Carcinoma Treated by Radium without Operation: Growth in Check Two Years later.*

F. A., aged 60, in June, 1917, noticed a lump in the left breast. In June, 1918, when she sought advice, there was a carcinoma in the breast the size of a large orange, immovable and attached to the skin. The glands in the left axilla were enlarged. She refused operation and was admitted in August, 1918, for treatment by buried radium tubes. On September 11th the breast was much smaller, softer, and more mobile—an extraordinary improvement. In October, 1918, an induration, possibly a second primary carcinoma, appeared in the upper and outer quadrant of the opposite breast, and she was sent for *x*-ray treatment. In April, 1920, no further developments had occurred, and the growths appeared to be still in check.

Radiation as a Preliminary to Operation.

Dr. N. S. Finzi believes that it is advisable to give a large dose of *x* rays just prior to operation, and I am inclined to think that the practice is a sound one, though its value is not easily susceptible of proof. It should not be allowed to delay operation. Recent work at the Middlesex Hospital goes to prove that the resistance of the patient to carcinomatous infection may be increased by a small dose of radiation prior to operation.

There is no doubt that radiation frequently converts an apparently inoperable tumour into an apparently operable one. I have met with three such cases during the past year.

Natural Cure of Cancer in Relation to X-Ray Treatment.

It is not possible to form a correct estimate of the value of radiation in cancer without taking into account the natural tendency of the disease to undergo local repair. In a lecture on this subject I came to the conclusion that "Every aggregation of cancer cells, after increasing in size for a varying period and for a varying rate, tends spontaneously to undergo certain degenerative or regressive changes. These changes begin at the centre of the mass, spread centrifugally to its circumference, and may terminate in the replacement of the mass of cancer cells by a fibrous scar."

These changes, which are exemplified in the ulceration of a primary growth and in the umbilication of secondary deposits in the liver, appear to depend upon a breakdown of the improvised vascular commissariat of the growth and upon the harmful internal pressure produced by the active proliferation of the cancer cells. These degenerative changes can be seen beginning even when the collection of cancer cells is still of microscopic size, as is a permeated lymphatic. Their onset is invariably accompanied by the advent of collections of lymphocytes to the neighbourhood. It is thus possible that in every carcinoma we have to deal with a comparatively small number of perfectly healthy and active cancer cells and with a large mass of more or less degenerate and dying cells. The former class of cell is to be found in the permeated lymphatics of the microscopic growing edge and at the edge of microscopic nodules of growth which are still in the actively infiltrating stage. It seems likely that these two classes of cell differ widely in their reaction to radiation. It is probable that the crowds of degenerate cells which constitute the mass of a carcinoma may fall a ready prey to the reaction of radiation. Even the earliest attempts at the destruction of secondary nodules by *x* rays were often locally successful. The shrinkage and disappearance of local masses of cancer may possibly indicate nothing more than the acceleration and completion of this natural process of destruction.

The Prophylactic Use of Radium at the Time of Operation.

Having considered and rejected the idea of extending the scope of the primary operation to include removal of the supraclavicular and the anterior mediastinal glands, I determined at the end of 1919 to try another plan to meet the deplorable frequency of intercostal and supraclavicular recurrence.

If in a considerable proportion of cases, at the time they come to operation, microscopic colonies of carcinoma cells are present in these glands, it may be fairly hoped that vigorous irradiation applied to the glands as directly as possible may destroy these colonies. There is the further possibility that a general immunizing action may be at the same time secured.

Prior to the closure of the main operation wound, a 25 mg. tube of radium is pushed under the intercostal fascia at the inner end of the first space. A similar tube is placed in the same way at the inner end of the second space, and it might be advisable, if a third tube is available, to place it at the inner end of the third space. The threads attached to these tubes are brought out through the line of incision or through separate stab wounds, as may be convenient. A 50 mg. tube of radium is now introduced under the deep fascia in the lower and inner angle of the posterior triangle, the situation where the first evidence of supraclavicular recurrence is usually found. This tube is introduced through a small stab wound. The radium is screened with 1 mm. of platinum; it is left in place for twenty-four hours and is withdrawn at the first dressing.

The following is the first case in which I used the method.

CASE XX.

A young lady of 32, six months pregnant and in vigorous general health, was brought to me in December, 1919, with a rapidly growing mastitic carcinoma of the upper and outer quadrant of the left breast. The axillary glands were enlarged. The growth was evidently very malignant, and the pregnancy as well as the youth and vigour of the patient made the outlook a bad one, but I urged an immediate operation, to be combined with the use of radium, and my advice was accepted. The pregnancy continued undisturbed, and resulted in a very fine healthy infant. Subsequently *x* rays were administered by Dr. Finzi. A section showed an exceedingly active and cellular growth with hardly any stroma. The patient was not permitted to suckle her child. At present (November, 1920), nearly a year later, she remains well.

This case was exactly of the type in which an early fulminating recurrence seemed inevitable, and its result to date is distinctly encouraging. I have since made the use of prophylactic radium a routine practice wherever possible. If the method establishes itself it will be necessary for surgeons dealing with breast cancer either to possess or to have access to the necessary amount of radium.

The use of radium in this way seems perfectly safe, if it is kept well away from the skin. The only drawback I have to report is that in several cases brachial neuralgia, lasting for several months, and accompanied in one case by a small trophic slough in the region of the elbow, has occurred. I shall therefore, in future, use a 25 mg. tube instead of 50 mg. in the supraclavicular triangle, and as a security against secondary radiation I propose to enclose it in a rubber sheath.

I await the results of this method with interest and hope, encouraged by the fact that no recurrence has yet taken place in any of the cases treated during the past year.

Open-air Treatment.

In conclusion, I should like to urge the importance of open-air treatment, both for its prophylactic value against recurrence and in the more chronic varieties of inoperable cancer. In cancer, as in tubercle, the natural defences of the body are to be partly found in the processes of inflammatory and fibrotic reaction. Clinical experience of the value of open air in tubercle shows that these processes are stimulated by fresh air.

ABSTRACT OF A LECTURE
ON
SUBACUTE BACTERIAL ENDOCARDITIS.*

BY

BASIL PARSONS-SMITH, M.D., M.R.C.P.,

PHYSICIAN TO OUT-PATIENTS, THE NATIONAL HOSPITAL FOR DISEASES OF THE HEART; HEART SPECIALIST, MINISTRY OF PENSIONS.

THE subject of this lecture—subacute bacterial endocarditis—has been selected primarily because it happens to be one of those states of disease which warrants a wider recognition, and because clinical observation and experience offer abundant and ever-increasing evidence of the high rate of incidence of the condition. In spite of the mass of convincing and definite conclusions arrived at by the pioneer investigators, subacute bacterial endocarditis is a disease which is very frequently overlooked entirely. To some extent this may possibly be accounted for by the fact that the condition is one of slow and insidious onset, more often than not arising in patients already suffering from cardiac disease itself of such a nature as to explain apparently, in perfectly satisfactory fashion, any degree of cardiac failure which may be present. Valuable indications, however, later to be discussed, enable us to realize that valvular lesions, typically quiescent, may become the seat of a fresh infection which will influence profoundly the whole outlook of the patient, and materially alter the prognosis. The whole position will be simplified if we are prepared to appreciate the presence of signs of active infection in patients suffering from a hitherto quiescent lesion.

* Delivered at the National Hospital for Diseases of the Heart, November 29th, 1920.

Real and weighty difficulties do, however, exist, for it must be admitted that we are still very far from the day when exact and tangible evidence will definitely enable us to understand and appreciate the features significant of the actual onset of infective endocarditis of the subacute variety. At the moment our situation is unsatisfactory. Certainly we can diagnose the disease without difficulty in its fully developed form by signs and symptoms which are unmistakable in character, but we know full well that this stage of the malady having been reached there can only be a fatal termination.

Obviously, therefore, it is our business as clinicians to search most carefully and assiduously for early indications of the presence of the infective process, for it would seem that, unless we can perfect our knowledge from this point of view, our chance of being able to employ successful treatment is exceedingly remote.

Before describing in detail the more important features of the subacute variety of bacterial endocarditis, it will possibly be of some advantage to review for a moment our conception of the types of disease which result from endocardial infections.

It is customary to divide endocarditis into two main groups: (1) The simple or benign; (2) the ulcerative, infective, or malignant. This division is arbitrary: useful from the clinical standpoint but of little value as regards etiology, pathology, or morbid anatomy.

The underlying process is similar, but the degree of intensity varies in the two groups, and all gradations are represented. In the milder forms of the disease organisms are not found; this may reasonably be explained by the fact that endocarditis is known to run a latent course in certain cases without modifying the symptoms of the primary affections to any appreciable extent, so that the early stage is altogether missed. Here we may suppose that the endocardial damage is either the work of short-lived organisms—very possibly of low virulence—or the result of the spread of toxins in the circulation. The endocardial damage, which is so frequently associated with acute rheumatism, exemplifies this benign or simple category. Here the early infection betrays itself unmistakably: the fever, which may have subsided, develops again, the pulse becomes rapid and irregular; the apex beat is noticed to be wavy and forcible, extending well outwards to the left, the shock of the heart sounds is exaggerated, and the sounds themselves become blurred in character. These signs are indicative of the first stages of endocardial infection; the later developments vary in individual cases, giving rise to all degrees of incompetence —myocardial, valvular, etc.

With regard to the second group—the ulcerative or malignant type of endocarditis so-called, in which the heart lesion is secondary to, rather than responsible for, a systemic pyaemia or septicaemia—a brief statement will suffice to explain the sequence of events which, taken collectively, constitute this grave disease. First, it is necessary to assume some primary focus of acute infection, a generalized blood invasion therefrom, and secondary lesions, ulcerative in character, of the cardiac valves or endocardium; depending largely upon the seat of the primary focus, also upon the variety of organism concerned, we must of necessity be prepared for physical signs widely varied in type, hence the grouping, which has been adopted from the clinical standpoint, into the three types—cardiac, pyaemic, and typhoid. We need not proceed to discuss these in detail, the special features which characterize each can be appreciated without difficulty; suffice it to say that the disease, in any of its forms, progresses with extreme rapidity, the duration usually being limited to a few days or weeks.

Subacute bacterial endocarditis may be said to occupy a position midway between the simple and the fulminating types of the disease; its title is fully descriptive, and will at once suggest in some measure the clinical aspect of the condition.

During recent years this variety of endocarditis has attracted considerable attention; an increasing number of cases seem to come under observation. One should not, however, conclude, without very careful investigation, that this disease is becoming more frequent in incidence, for in dealing with this matter several factors must be faced, not the least of which is our conviction that fewer cases are overlooked nowadays than formerly. We are tending, in fact, to become more familiar with the disease, and there is a general agreement that diagnosis need present no difficulty, so characteristic is the clinical aspect of the condition.

The onset of the disease is usually insidious, and symptoms are not necessarily pronounced. An ill-defined malaise, general debility with loss of strength and tone, erratic and fleeting pains in the joints or limbs—each or any of these may be the only indication from the patient's point of view of the earlier stages of the disease. Symptoms of cardiac failure—dyspnoea, palpitation, giddiness—may be noted, but as often as not will fail to manifest themselves until the disease has become fully developed. One realizes, therefore, that the symptoms of subacute bacterial endocarditis are far from being precise—in fact, more often than not they appear to be extremely vague. Not so the physical signs, which present an unmistakably clear-cut clinical picture: examination of the heart shows in every instance the presence of an organic murmur at the aortic or mitral regions; apart from the murmur, the heart may show little or no evidence of functional disturbance during the course of the disease; beyond a simple tachycardia the rhythm, as a rule, remains unaffected, the myocardium retains its power, venous stasis does not develop—in fact, one may follow the entire progress of the disease without noting at any time a full development of the true signs of cardiac failure. In other words, we can very reasonably conclude that the endocarditis does not represent or explain, in anything approaching adequate fashion, all the signs and symptoms which we have learnt to associate with this disease, and furthermore we can readily understand the prevailing idea of the nature of the malady—namely, that it is a general systemic disease depending upon a bacterial invasion whose seat of origin is localized at some focus of chronic or quiescent valvulitis.

Clinically, therefore, we may expect in this type of case to find a series of important signs which we are not in the habit of associating with valvular disease of the heart in its uncomplicated forms: pyrexia will be present at some period during the progress of every case; the type of curve is irregular, remissions and apyrexial intervals are frequent, rigors and sweats are common. Examination elicits numerous confirmatory phenomena; of these there are three—namely, pallor, enlargement of the spleen, and clubbing of the fingers—which, taken together, may conveniently be referred to as the diagnostic triad of the disease. The pallor suggests a profound secondary anaemia, and the dusky sallow tinge is indicative of the septicaemic state. The clubbing of the fingers and toes is insidious in onset, develops later with extreme rapidity, and, curiously enough, the patient is as often as not quite oblivious to the change which is in progress; the regularity of this sign will at all times materially assist diagnosis.

Other signs are forthcoming during the progress of the disease, and include multiple arterial embolism, renal insufficiency, haematuria, positive blood culture, sternal tenderness, loss of weight, progressively increasing anaemia, and, accompanying the secondary lesions in the final stages, varying degrees of leucocytosis.

Time does not permit an exhaustive description of the large variety of embolic phenomena which characterize this disease; objectively we recognize their presence without difficulty in the majority of instances; especially is this so with infarction of moderate sized vessels, as, for instance, those of the spleen, kidney, brain, or extremities. Other emboli, however (the smaller varieties and those microscopic in size) produce results equally significant—cutaneous petechiae, painful nodes, and discoloured patches on the terminal phalanges of the hands and feet, arthritic inflammations, embolic aneurysms, etc.

A blood culture must be attempted in every case that comes to our notice, but a negative result should not deter us from further efforts to cultivate the organism. In spite of the fact that we have as yet insufficient evidence to dogmatize, I feel that the variety of endocarditis at present being considered is not the result of any one specific organism; several types have been found, including pneumococci, gonococci, the influenza bacillus, and small streptococci. In the opinion of Libman, whose researches entitle him to speak with authority, these subacute varieties of endocarditis are due to the *Streptococcus anhaemolyticus* in about 95 per cent. of the cases. The other 5 per cent. are due mainly to the influenza bacillus; but an additional case will be due to the gonococcus or *Micrococcus flavus*.

It does happen, however, that the blood culture is persistently returned as negative in certain cases of indisputably infective endocarditis. The explanation for this is not easy; three suggestions may be made:

1. That organisms are present in the blood stream, but of a type which defies our present methods of culture.
2. That the bacteria, though massed on the cardiac vegetations, are not circulating in the blood stream.
3. That the vegetations, and the blood stream also, have become bacteria-free.

In support of the two latter suggestions proof of a definite character may be quoted, certain cases having been recorded in which a completely sterile blood stream has been associated with endocardial lesions demonstrated *post mortem* to be teeming with bacteria; in other cases with negative blood cultures examination of the crushed vegetations entirely fails to reveal the presence of bacteria. The whole subject of blood cultivation in subacute bacterial endocarditis is undoubtedly important, and needs further investigation; our present state of knowledge, however, enables us to state quite positively that, for purposes of diagnosis, a positive blood culture is certainly not essential.

With regard to prognosis, we have unfortunately grounds for extreme precision: the disease is invariably fatal; three to twelve months may be looked upon as an average period, though the patient may drag on slightly longer in some instances. The progress of the disease is relentless and rapid; infective emboli are responsible for widespread and lasting lesions, and incidentally cause a large part of the suffering which these patients undergo. The cause of death is cerebral embolism, or haemorrhage, uraemia, progressive anaemia, or intercurrent pneumonia.

The abbreviated notes of two patients recently admitted to this hospital will illustrate, from the clinical point of view, some of the features which characterize the progress of the disease.

CASE I.

G. W., aged 36, pensioner. Admitted September 14th, 1920; died November 7th, 1920.

Past History.—Negative except for trench fever in 1917. The serum test was negative. Onset of symptoms June, 1920: Dyspnoea, palpitation, pain under heart with exertion, slight cough; no haemoptysis; loss of weight.

On admission (September 14th) the physical signs were pallor, clubbing of fingers, enlargement of spleen and liver, oral sepsis; heart enlarged; free aortic reflux; lungs engorged.

Progress.—Patient was in hospital three weeks, and, during this period, the condition became steadily worse; fever of an intermittent character persisted, petechial haemorrhages were observed from time to time; sweats, rigors, and all the usual concomitants of septicaemia, complicated the final stages, and death took place on November 7th, barely five months after the onset of the initial symptoms.

CASE II.

S. B., aged 26, pensioner. Admitted September 1st, 1920; died September 25th, 1920.

Past History.—Negative. Discharged from the army March, 1917, for gunshot wound, face and neck. Serum test negative.

Onset of Symptoms.—May, 1920, palpitation after exertion, shortness of breath, vertigo, and fainting attacks.

Physical Signs on Admission (September 1st, 1920).—Pallor, anaemia, and poor nutrition; fingers clubbed; heart enlarged, free aortic regurgitation, vessels thickened, pulse collapsing in quality; liver and spleen enlarged and tender; petechial rash on neck and upper thoracic region; urine, heavy cloud of albumin and blood cells numerous.

Death from cerebral embolism on September 25th, five months after the first onset of the symptoms of the disease.

The *post-mortem* appearances in patients who have died of subacute bacterial endocarditis bear ample witness to the widespread nature of the disease. The heart is enlarged in most instances; the endocardium and valves are the seat of gross changes in the shape of extensive vegetations, which vary very considerably in appearance and consistence; the older lesions are usually firm, greyish, and calcareous, the most recent reddish-yellow and extremely friable.

The valves involved are the mitral and the aortic, the latter more frequently than the former; in the majority of instances, however, the infective process spreads from the primary seat of infection, both to the adjacent endocardial wall and to the neighbouring valve; under these circumstances one notices that the oldest infection is the most extensive. It is important to observe that the right side of the heart is never involved, furthermore that the endocarditic process is of a purely vegetative character, ulcerative lesions playing no part in the condition.

A large number of conditions found *post mortem* elsewhere than in the heart might be mentioned; they depend in every instance upon embolic processes which may very obviously affect the arterial channels in any part of their course, and determine the production of visceral infarcts or haemorrhages, mycotic aneurysms, etc.

Treatment.

Treatment should follow the broad lines adopted for any form of septicaemia: rest in bed should be absolute, the diet should be light and easily digestible; the action of the bowels must be free; drugs are of little value, though some temporary benefit may follow the prescription of tonics such as iron, arsenic, and quinine. Strychnine, by reason of its effect on the vasomotor centre, and digitalis, may be employed for symptomatic reasons and will sometimes assist in tiding over critical periods.

Intravenous injections of collargol and other metallic and antiseptic substances have been tried without success, no useful purpose therefore can be served by advising treatment of this nature.

Vaccines should be given a trial in all cases, but, in the experience of most observers, their remedial effect on the disease, in its fully developed stage, must be considered to be small.

The whole subject of treatment in this disease forces upon us the conclusion that subacute bacterial endocarditis, in the stage which permits diagnosis by gross physical signs, is an incurable malady. This being so, our duty becomes clearly defined: we must endeavour to recognize the initial stage of the disease, the early evidence that fresh infection has developed upon some old and quiescent lesion, the origin of the infective process, the factors which permit of its spread, the influence of a lowered tissue resistance, etc., for we know full well that, until we possess reliable data concerning the preliminary phases, our chances of lessening the mortality of this dread disease are wholly insignificant.

AN OPERATION FOR THE RADICAL CURE OF PRE-MASSETERIC FISTULAE OF STENSON'S DUCT.

BY

GILBERT CHUBB, D.Sc., M.B., F.R.C.S.,

SURGEON, THROAT HOSPITAL, GOLDEN SQUARE, AND PLASTIC SURGEON, QUEEN'S HOSPITAL FOR FACIAL INJURIES, SIDCUP.

THE ideal treatment for this condition is the restoration of the continuity of the duct (Nicoladoni). This, however, must always be difficult, and in any but recent cases must be impossible. An alternative method is to dissect out the duct, sever it from the fistula, and turn it into the mouth (Languebeck, also Riberi).* As the original cause of the fistula usually produces considerable local scarring, this also is an operation that can only occasionally be successful. A large group of operations aim at the formation of an internal fistula, either by means of a ligature causing sloughing of the tissues between the duct and the mouth cavity (Deguise and P. Gould), or by means of a small tube passed through from the fistula into the mouth (Kauffmann's modification of Descoult's operation). All these methods are tedious and at the best uncertain. If these fail it is recommended either to ligature the duct, admittedly entailing the risk of abscess formation in the gland,† or to dissect and remove as much of the gland as possible without damage to the facial nerve. This method admittedly produces disfigurement, but is regarded as preferable to a persistent salivary fistula.

The number and varied character of the methods described for the treatment of this condition, and the drastic

* As an alternative to this method, when a considerable portion of the duct is destroyed, or much fibrous tissue is present, Dujardin and Gulikers (*Ann. de la Soc. Belge de Chir.*, October, 1900) incise in the direction of the duct and dissect up both this and the masseteric promulgation of the gland, which is then passed between the masseter muscle and the mandible, and stitched into the opening in the mucous membrane of the oral cavity.

† Morestin (*Bull. Ant. Men. de Chir.*, Paris, 1917; Abstract S.G.C., 1917) makes a rule to dissect out and ligature the duct, the gland subsequently degenerating. This author has done 32 cases since 1913 by this method.

nature of some of them, is a sufficient indication of their uncertain value, and has induced me to publish the operation now described. Its advantages are great simplicity and, as far as I have practised it, reliability; while it permits of the complete removal of the fistula and surrounding scar tissue from the cheek with primary union of the remaining linear incision at one operation.

I have performed this operation in three consecutive cases.[1] In two the fistula was due to a gunshot wound in the malar region, and in one it followed the external rupture of an alveolar abscess. In each case the fistula was situated immediately in front of the anterior border of the masseter, and had been in existence for over a year. In one case a course of several months' treatment with the hard *x*-ray tube had failed to effect any improvement, and in another the fistula had previously been dissected out and the cheek closed by a plastic operation, without alleviating the condition.

The Operation.

Two horizontal incisions, about a quarter of an inch apart, are made, the one above and the other below the fistula. Two short vertical incisions serve to isolate a small button of skin bearing the fistulous opening. The posterior of these incisions is cautiously deepened, a probe being meanwhile retained in the duct lest the latter should be too closely encroached upon (Figs. 1 and 2). The anterior vertical incision is deepened at once until it enters the mouth immediately below the reflection of the mucous membrane opposite the upper molar teeth. In one case this area of the cheek was adherent to the alveolar border owing to scarring following the injury, and was mobilized by means of an epithelial inlay some weeks prior to the operation. The probe is now withdrawn, and small catgut mattress sutures inserted in the anterior and posterior lips of the skin button, and drawn through the wound into the mouth. Similar mattress stitches are inserted in the lips of the opening of the buccal mucous membrane, and these are now tied together within the mouth. The original anterior edge of the skin button is stitched to the posterior lip of the opening in the mucous membrane, while the posterior edge of the latter is tied to the anterior lip.

FIG. 1.—Showing the incisions. A probe has been inserted into the fistula. The triangular areas of skin on either side of the area bearing the opening are discarded.

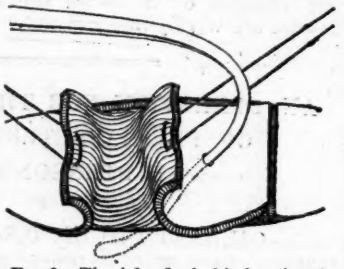


FIG. 2.—The island of skin bearing the fistulous opening in course of mobilization. Deepening the posterior incision, with probe in position in the duct.

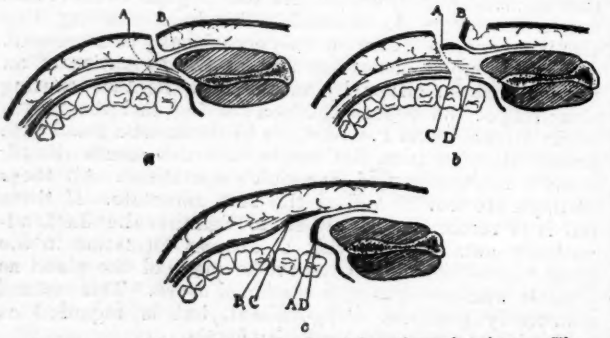


FIG. 3.—Semi-diagrammatic horizontal sections showing: *a*, The condition of duct and fistula prior to operation; A and B, position of incisions. *b*, The mobilized area of skin bearing the fistulous opening, and containing the salivary duct in its pedicle; A and B, anterior and posterior lips of mobilized skin area; C and D, lips of the opening through the mucous membrane. *c*, The mobilized skin area seen in *b* has been inverted, and its edges sewn to those of the opening in the mucous membrane. The letters A, B, C, D have the same significance as in *b*.

[1] September and December, 1918, and May, 1919.

(Fig. 3, *a*, *b*, *c*, shows diagrammatically the successive stages in this process.) No attempt is made to mobilize the skin button sufficiently to allow of its complete reversion. If it is turned over to face forwards and slightly inwards, the elasticity and loose attachment of the oral mucous membrane will allow of the latter being drawn up to the button, the post-operative appearance in the mouth being that of a conical recess of mucous membrane, passing backwards and outwards to the fistulous opening. The lips of the original incisions are now very slightly undercut and brought together, thus covering the reversed surface of the skin button bearing the fistulous opening.

In one of the three cases the tip of a defective probe remained in the duct, and was subsequently discharged through the operation wound. This has resulted in a slight external leakage, which, however, does not amount to a complete drop during a meal. In the other two cases healing was by first intention, and the wound has remained dry since the operation, now more than two years ago. In all three cases there is now a free and normal discharge of the parotid secretion into the mouth.

ADRENALIN IN RESUSCITATION FROM APPARENT DEATH.

BY

CRANSTON WALKER, M.D., B.Sc.,

HONORARY PHYSICIAN, GUEST HOSPITAL, DUDLEY, ETC.

ANAESTHESIA, asphyxia, the passage of a powerful electric current, violent emotion, and violent sensory stimulation may place the body in a state which resembles that of a clock which has been stopped, but not permanently damaged; if the machinery can be restarted it will continue to run automatically. Relatively simple means will often suffice to set things in motion again, as a mere shake will serve to start a clock. Sometimes it appears as though a more accurately fitting stimulus were required, like a swing in time with that of the pendulum.

Mr. Welby Fisher, in a very interesting paper,[1] advocated cardiac massage applied through an epigastric incision. He makes no reference to the use of adrenalin. The following notes of a limited experience may be of interest.

Adrenalin applied to the heart muscle acts on the sympathetic neuro-muscular junction, and very greatly increases both the excitability of the tissue and the energy output of the muscular contractions. In some twenty cases of death from various causes, when all signs of life had ceased for several minutes, I have injected a minim or two of 1 in 1,000 adrenalin chloride directly into the heart muscle. A fine needle was passed through the fifth left intercostal space, just mesial to the lung resonance; the point was directed slightly inwards and upwards, and could be felt to enter the apex of the heart; when firmly imbedded in the muscle the injection was made. Several of these needle tracks were examined *post mortem*, and in no case did it appear that any drawback would have ensued had the patient survived.

In most of the cases death had occurred as the result of long established disease, and adrenalin was neither expected nor observed to have any effect (a fact not without interest). In the following three cases circumstances were more favourable.

CASE I.

A splendidly built young man had received a powerful electric shock while fitting an electric lift, and all appearance of life had instantly ceased. When seen by me it is estimated that about twenty minutes had elapsed; there were no signs of circulation, the upper parts of the body were pale, the lower were dusky, showing that the blood distribution was determined by gravity; the skin was already cool. Artificial respiration was applied, adrenalin injected into the heart muscle, the needle shaken *in situ*, the heart was massaged, but without abdominal incision, and was stimulated faradically. There was no response.

CASE II.

A child of 11 months during a circumcision under chloroform had stopped breathing, and became pale and flaccid; the pupils were dilated, no pulse could be felt, and no heart sounds could be heard. Artificial respiration was started, and the heart was massaged by pressing the fingers under the costal margin; in this case the heart could be felt, and almost gripped between the fingers. There was no response, and the body was cooling perceptibly. Adrenalin was injected into the heart muscle, and immediately the heart started beating; shortly after respiration recommenced, and in a few minutes the child appeared normal. The time was not accurately observed, but it is estimated that at least four minutes had elapsed between the stoppage of the

pulse and the injection of adrenalin. The anaesthetist's estimate is considerably greater. The child was seen at intervals for three or four weeks; not the slightest ill consequence was detected.

CASE III.

A woman of 30, with empyema, had just had an exploring needle passed into an intercostal space. Suddenly she became limp and pale, she murmured a word or two, but the sound diminished into silence. She dropped back apparently dead. The muscles were quite flaccid and motionless, no pulse could be felt nor heart movement heard; jaw and eyes were in the cadaveric position. Artificial respiration was commenced, and adrenalin was sent for. Suddenly the pulse returned, beating strongly under the fingers, the patient flushed, and a few minutes later she was sitting up and talking. She had passed through a Stokes-Adams attack, subsequently repeated. Possibly more detached observation would have detected an auricular pulsation in the jugular veins. Had the adrenalin arrived half a minute sooner a striking success might erroneously have been ascribed to it.

Although Case III shows the need for caution in interpreting results, Case II suggests that injection of adrenalin into the heart muscle may restart it when other means fail.

Conceivably the needle might be pushed on into the cavity of the left ventricle and Ringer's solution containing adrenalin might be run in under pressure through a tube and funnel; on passing through the coronary arteries the adrenalin would be brought much more intimately into contact with the heart muscle, and would reach the more excitable sinus node and auriculo-ventricular bundle. The flow of Ringer's solution, preferably oxygenated, would also supply a temporary artificial circulation. Reports on wounds of the heart suggest that the risks of passing a fine needle through the apex of the heart are small compared with those of the desperate condition in which such means would be used. The method seems sufficiently promising to invite preliminary experiments on animals.

REFERENCE.

[1] BRITISH MEDICAL JOURNAL, November 6th, 1920, p. 698.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

COMPLEMENT FIXATION TESTS IN THE DIAGNOSIS OF TUBERCULOUS INFECTIONS.

(A Preliminary Note.)

ONE of the writers began to study complement fixation tests in the diagnosis of tuberculous infections in the autumn of 1919. He was joined by his colleague later in the year. Our work is not yet finished, but it is hoped that the results will be advanced sufficiently for publication within a few months.

Complement fixation tests in tuberculosis have been studied by numerous workers since 1901. Varying results have been obtained, attributable to differences in technique and the characters of the antigens used.

We have attempted (1) to test the relative value of types of some of the chief antigens which have been used in the past; (2) to devise a reliable technique. We have tested four antigens up to the present time:

(*a*) A saline emulsion of living tubercle bacilli.
(*b*) An alcoholic extract as proposed by Craig.
(*c*) An alcoholic extract as used by Dudgeon.
(*d*) An antigen prepared by Wang and Crockett's method.

We find, on the whole, that the antigen of Wang and Crockett is reliable, and probably the best one that has been used to any extent up to the present time. With this antigen, and using a technique modelled on the ordinary Wassermann methods, we have tested cerebro-spinal fluid and serum from cases of tuberculosis, and from non-tuberculous cases, including normal serums and serums from patients suffering from various diseases. We obtained 61 positive results in 85 cases of definite active tuberculosis, and negative results in 50 non-tuberculous cases. We also obtained some positive reactions with serums giving a strongly positive Wassermann reaction, as previously found by Wang and Crockett. Our work is now being applied mainly to the investigation of tuberculous disease in children.

ARTHUR SELLERS, M.D.
E. N. RAMSBOTTOM, M.D.

The Public Health Laboratory,
Manchester University.

LETHARGIC ENCEPHALITIS.

As it has been my fortune to see no less than seven cases of this disease in the past fortnight, though previously for some months I had met with no fresh case, it would appear that a temporary recrudescence of intensity of the epidemic is occurring. The virulence of infection also has not notably lessened, two of these cases having already died.

As with all diseases named after a prominent symptom, lethargy is not an invariable occurrence in this form of encephalitis, and one feature that has been prominent in at least two of my recent cases, namely, quiet delirium and delusions, may lead to a mistaken diagnosis of insanity; indeed, one of my patients was brought to me by his friends from a distant suburb because the doctor in attendance said it was a mental case and should be sent to an institution. Another I have just seen has been treated for nine weeks for nervous breakdown, as he complains that his brain is not right. He has been observed frequently talking to himself about business troubles, worried much about his bladder, unnecessarily so according to his wife, and one day said to his doctor that he had 37s. 6d. in his bladder which he wanted to pass! He showed no drowsiness and was allowed to go about as usual, but the clue to recognition of the encephalitis lay in his mask-like facies resembling paralysis agitans, with marked tremor of one hand, small irregular pupils reacting poorly to light, and a pulse of 90.

Many patients complain early of blurring of vision, scarcely diplopia, and then nystagmus is usually present, perhaps most intense on looking downwards. Pyrexia of 101° F. or more and a rapid pulse are bad signs, the prognosis as regards life being almost in proportion to the degree of tachycardia. Quite a number of cases show no ptosis or drowsiness, and with the absence of ocular symptoms the recognition of this disease may be overlooked unless its present prevalence be constantly kept in mind. In others muscular twitchings are prominent, and sometimes headache, though usually no pain in the head is complained of.

It is important that cases of this disease should be kept at rest and free from worry, using sedatives and hypnotics, such as ammonium bromide and chloralamide if required, in order to limit the liability of permanent cerebral lesions occurring, which have been only too frequent. Many such cannot be avoided, one of the commonest being a permanent mask-like rigidity and perhaps tremor, resembling paralysis agitans closely, and due to lesions in the lenticular nucleus, as in that disease.

London, W. WILFRED HARRIS, M.D., F.R.C.P.

A CASE OF CARDIAC MASSAGE.

AFTER reading Mr. Fisher's article on resuscitation in death under anaesthesia in the JOURNAL of November 6th, 1920, I think it may be interesting to publish notes on the following case; though the treatment was not finally successful, yet the response was so marked as to emphasize the importance of the method.

The patient was a weak thin man of 45 to 50. On August 21st, 1920, the operation of gastro-enterostomy was being performed by Mr. F. O. Lasbrey for continual pain and vomiting. It was largely completed when the patient stopped breathing. Artificial respiration was performed and breathing very soon started again, but the pulse was very weak. The operation was continued, but in a few minutes breathing stopped again, and the pulse could not be felt. Artificial respiration, strychnine, ether under the skin, hot cloths to the epigastrium were all tried without avail. The gloved hand was inserted in the abdomen through the operation incision and an attempt made to massage the heart through the diaphragm, but the heart could not be felt at all. Finally, after half an hour, during which time there had been no voluntary breathing and no pulse or audible heart sounds, the case appeared quite hopeless. Then direct massage of the heart was tried. I cut through the anterior left fibres of the diaphragm and passed my gloved hand, by means of the abdominal incision, through into the chest cavity. I found the heart small, flabby, and empty, and quite without movement. I grasped and squeezed it, and kept up continued massage on it, artificial respiration being continued meanwhile. After some considerable time, at least five minutes, the heart began to respond, inasmuch as it became firmer and larger, and on squeezing it empty it automatically filled again. Massage was continued. Shortly after, on ceasing the massage for a brief period, a very small beat, feeling almost like a tremor, continued, but only for a very short time. Pituitrin extract, 1 c.cm., was given, and soon after, on ceasing the artificial respiration, the patient took one respiration himself,

but did not continue. Again later the heart continued to go for a brief time alone and the patient breathed again. Then he breathed twice in succession, later three times, and so on till he twice breathed automatically nine times consecutively, but did not continue. Also the heart would not keep going for long if the massage were suspended. About a pint and a half of normal saline was injected into a vein in the arm and more pituitrin extract given, but the breathing would not start again. The heart gradually got weaker. It still responded to massage, but would only give one or two beats when left alone, till finally, nearly two hours after breathing first stopped, response failed and the case was given up.

We may note that the heart had given no sign of beating for about half an hour when direct massage was tried. It could not be grasped or moved at all through the diaphragm because it was small, empty, and flabby, and lying against the back of the chest wall. Massage was continued for over an hour, and up to nearly an hour after commencing direct massage there was irregular and non-continuous automatic heart-beating and unaided respiration. This case might have been hopeful had direct massage been employed earlier. It would appear wise in every case of collapse under anaesthesia to employ cardiac massage as soon as it is ascertained that the heart has ceased to beat.

ROBERT B. COLEMAN, M.B., Ch.B.Birm.,
Church Missionary Society's Hospital,
Old Cairo, Egypt.

Reports of Societies.

SURGERY OF THE ELBOW.

AT a meeting, held on November 26th, 1920, of the Surgical Section of the Royal Academy of Medicine in Ireland, with Sir W. I. DE C. WHEELER in the chair, Mr. R. ATKINSON STONEY read a paper on modern surgery of the elbow, and showed three cases of excision of the elbow operated on from ten months to ten weeks previously for ankylosis following gunshot wound. A fourth case was shown of operation for flail elbow, also succeeding gunshot wound. In all cases the result was an arm with good movement of the elbow and fair stability. Owing to the short interval which had elapsed since some of the operations, further considerable improvement might confidently be expected. As a result of the Great War, the speaker said, the surgery of the elbow had retrogressed by forty years. Before the war an ankylosed elbow was looked upon as a success, and excision for it was banned. The change of surgical teaching was largely caused by the bad results obtained by excision of the elbow in the early stages of the war, and this again was the result of the employment by unsuitable men and in unsuitable cases of the operation of primary excision—an operation which was probably never justifiable except as a life-saving or arm-saving device employed by the inexperienced. The teaching was now becoming crystallized that excision was unsuitable for gunshot wounds of the elbow, and that the ideal result was an ankylosed joint. This it appeared was largely due to the application of the principle of reducing the standard to the lowest capacity—an attempt to make rules to fit all cases. A good elbow with free movement and moderate stability was possible of attainment in most cases of ankylosed joint, and in some cases of flail elbow. Each case of ankylosed or flail elbow should be carefully considered with regard to (1) the present condition, and the handicap caused to the patient's work; (2) the result that might be expected from operation, especially with regard to the relative movement and stability of the new joint; (3) the consequent increase in the man's capacity or usefulness at his old or some new occupation. The position should then be fairly explained to the patient, and he should be allowed to decide for or against operation.

The main points in excision were: Vertical division of the triceps and its insertion into the periosteum and deep fascia of the forearm; limited removal of bone in the forearm; careful suture of the wound in layers; drainage; early electrical treatment and massage. The main points in operating for flail elbow were: Division of tissues between bones in a vertical direction from behind until the fibres of the brachialis anticus were reached; adjustment of bone ends, which should be united, preferably by several strands of silkworm gut; suture in layers of the tissues behind the bones; no drainage; avoidance of early weight or strain on arm.

Sir WILLIAM WHEELER said that while individual cases should be treated on their merits, it was his general practice to mobilize ankylosed elbows in officers, and in men to secure fixation at an open angle, especially in the left elbow-joint. A certain degree of lateral mobility was inevitable after resection, and, as a rule, the security of a fixed joint was better for manual work. Mr. H. STOKES spoke in favour of fixation, and described the originally desperate condition of one of Mr. Stoney's patients whom he had seen in France with streptococcal septicaemia. Mr. ADAMS A. MCCONNELL maintained that the question of fixation or mobilization should be decided by the employment which the patient wished to follow. Mr. DOOLIN referred to the dangers of lighting up latent infection in wounded joints, particularly in the case of tetanus. He had been accustomed to use the Kocher incision instead of the vertical.

Mr. STONEY, in reply, said that no rule could be framed for treating lesions of the elbow. Each case should be given the opportunity of the treatment best suited to its requirements. He had never had a case of gunshot injury where tetanus had been lighted up by operation; he used a dilute bipp as a prophylactic against latent sepsis.

PATHOLOGY OF INFLUENZA.

AT a meeting, held on December 2nd, 1920, of the Pathological Section of the Liverpool Medical Institution, the President, Dr. J. E. GEMMELL, being in the chair, Dr. J. G. ADAMI, Vice-Chancellor of Liverpool University, read a paper entitled "The pathology of influenza: an attempt to find a common lesion for the successive stages of pre-pandemic purulent bronchitis, pandemic pneumonia, and the haemorrhagic pulmonary oedema characteristic of the late pandemic of influenza, and to distinguish those lesions due to the primary causative agent from those due to the secondary invaders."

Dr. Adami first referred to the generally accepted view that the influenza epidemic started in May of 1918, and was followed by a much more serious epidemic in the autumn of that year. He did not, however, think that this view was correct, for early in 1916 and the spring of 1917 Hammond, Rolland, and Shaw had described a series of cases of purulent bronchitis in what was now known to have been the Etaples area. These cases were characterized by a peribronchitis, a destruction of the lining bronchial epithelium, and a bronchitic and bronchiolitic purulent discharge, all of which were associated with the presence of both the influenza organism and the pneumococcus. It was curious to note that in the same year (1917) an exactly similar epidemic was noted in the Aldershot area by Abrahams. Further, in that year American bacteriologists noted a very fatal form of pneumonia following measles. MacCallum showed that the morbid anatomy of the respiratory tract was that of an interstitial pneumonia, an exudate that was not excessively cellular, a destruction of the epithelium of the bronchi, and a microscopic appearance of the bronchioles extremely suggestive of that found in the French and English epidemics. This investigator found, however, that the chief organisms in this series were a haemolytic streptococcus and the pneumococcus; the influenza organism was only noted a few times. Then came the great epidemics of 1918. Dr. Adami showed that in the reports from France, Macedonia, Italy, India, and America, it was possible to trace a morbid histology and bacteriology common to all. In all areas the disease was ushered in with congestion and suppuration of the upper nasal respiratory tract, and in those regions where those parts had been bacteriologically examined reports invariably showed that the influenza organism had been recovered. Further, a tracheitis limited to the lower third of the trachea was perhaps the greatest common histological factor. The speaker felt sure that whatever might have been the changes due to other bacteria, the influenza organism of Pfeiffer, if not the *causa causans*, was always associated with the disease. In the autumn, however, it was obvious that the virulence of the organism had been raised to an inordinate degree, and Dr. Adami suggested that the absence of pus, the haemorrhagic oedema, and the marked lymphatic dilatation

might be explained by negative chemiotaxis. In this connexion reference was made to the classical experiments of Metchnikoff on mild and virulent anthrax organisms. After demonstrating the means whereby the lungs were protected from micro-organisms by the obliquity of the nasopharynx and by the ciliated epithelium, Dr. Adami showed how in influenza this protective device broke down.

The discussion was adjourned until the next pathological meeting.

CLINICAL CARDIOLOGY.

A MEETING of the Devon and Exeter Medico Chirurgical Society was held at the Royal Devon and Exeter Hospital on December 16th, 1920. In the absence of Mr. B. Dyball, the President, the chair was taken by Colonel RANSOM PICKARD, C.B., C.M.G.

Dr. W. GORDON read a paper on the practical gains of clinical cardiology since 1900 (printed in the BRITISH MEDICAL JOURNAL of January 1st). In the discussion which followed, Dr. B. KELLY commented upon the comparative rarity of massive oedema as a complication in cases of cardiac disease occurring in the Exeter area. He had also noted that when oedema did occur it was a late manifestation in the case, and where his experience had taught him to expect no improvement. He asked Dr. Gordon if he could give any explanation for this local variation. Dr. R. V. SOLLY, in alluding to the subject of malignant endocarditis, mentioned that short streptococci had been found in the majority of his cases, and that vaccine treatment had not so far proved to be of any benefit.

Mr. NORMAN LOCK gave an account of two cases where manipulation of the heart had been undertaken for the treatment of profound shock, and he also narrated the case of a man from whom he had removed shrapnel embedded in the anterior border of the heart. Prior to operation the man showed high grade cardiac inefficiency, but he had made a good recovery, and was now able to earn his living at a moderately light occupation. Dr. F. A. ROPER considered that "irritable heart" must not too readily be assigned to neurasthenia. As regards heart hurry he had frequently noted a high blood pressure in such cases, and he had often had reason to suspect that the condition might lead to actual arterio-sclerosis. He was of opinion that clinical instruments, such as the electro-cardiogram, although not directly concerned with treatment, were a powerful attribute to diagnosis.

Dr. J. D. HARRIS spoke of his personal experience as to the value of digitalis in two cases of auricular fibrillation. He referred also to the difference in the long axis of the heart as shown by x rays in various subjects. With regard to treatment in streptococcic infection, he discussed the possibility of x rays being able to reach the endocardium, having regard to the short distance from the surface. Dr. H. E. WHITE commented upon the irregular heart so often noted after measles in children, and he asked for an explanation of a murmur audible in the axilla but not at the apex. Dr. T. R. WHIPHAM discussed the value of the cardiogram in demonstrating myocardial changes. Mr. WAYLAND SMITH paid tribute to the benefit derived from the employment of atropine in cases of enteric fever occurring amongst the troops in France. Slow action of the heart—an early symptom—had been considered an indication for giving the drug.

Dr. G. L. THORNTON referred to the comparative decrease in the number of cases with a diagnosis of disordered action of the heart appearing before pensions boards during the past twelve months. The majority had been classified into their respective cadres, quite a large number being symptomatic or sequelae of malaria or dysentery, and responding to the treatment given for the parent disease. Others had been referred to the neurological clinics as entirely of nervous origin, whilst most conspicuous was the high figure of those who had been proved to be suffering from pulmonary tuberculosis, the dyspnoea and poor cardiac response apparently being but an early symptom of that disease. A small minority remained where the onset of the cardiac disability could be referred to strain during service.

Dr. A. HIPWELL referred to the cardiac condition found amongst cases attending the tropical diseases clinic, and emphasized the importance of sub-classification, if the term "D.A.H." was to be used at all. Colonel RANSOM PICKARD, speaking from his experience as the A.D.M.S. of a Division, had noted the loose employment of the classification "D.A.H.," and of the amount of correction in diagnosis which had been found necessary when so-called cardiac cases were examined at medical boards.

Dr. W. GORDON, in reply, stated that in his opinion instrumental methods were impracticable for general use, and that they were of physiological rather than of clinical utility. With regard to Dr. White's question, he had frequently noted a respiratory murmur in the axilla. He had made observations similar to those of Dr. Kelly, and attributed the cause to a mild climate, which made complications such as bronchitis or nephritis less frequent. As regards treatment in malignant endocarditis, he mentioned improvement after injections of antistreptococcic serum, and more recently of eusol intravenously. He hoped that the connexion between "D.A.H." and early tuberculosis would be given publicity. Referring to remarks made by Dr. Harris, he stated that the axis of the heart was daily receiving more attention. He had had no personal experience of atropine in enteric fever.

Reviews.

DR. CREIGHTON'S CONCLUSIONS ON CANCER.

IN his recent work *Some Conclusions on Cancer*[1] Dr. CHARLES CREIGHTON brings forward the result of work, published and unpublished, extending over nearly fifty years. The problem of cancer has thus been critically studied by him for an exceptional period, and after such prolonged investigation his views demand respectful consideration, even though they may run counter to generally accepted opinion, and are not very easy to grasp. A study of chorion-epithelioma, which provides special data supporting his deductions, was recently undertaken at the London Hospital, and ample opportunities for investigating mouse cancer have been utilized. The object of this volume is avowedly not controversial, critical, or negative, but to put forward positive conclusions based on original observations and argued at first hand. After an introduction, which summarizes the argument, the first part, illustrating the principles, deals at some length with chorion-epithelioma, mouse cancer, and malignant tumours of the eyeball; the second part describes cancer in its common sites—namely, the skin, the alimentary canal, breast, and uterus; the last chapter sums up the author's views on causation, and there is an interesting appendix on the history of endothelioma.

Dr. Creighton insists that cancer is not due to one cause only and that the search for a unit of causation will lead to disappointment, for in every cancer there are various co-operating factors, of which one may be predominant in one form or locality of the disease, another in a different one. He argues that the commonly accepted view that cancer is due to a continuous overgrowth of pre-existing epithelium is erroneous, and that recent investigators of chorion-epithelioma and mouse cancer have missed a great opportunity because they have been dominated by this conception. Consideration of chorion-epithelioma, mouse cancer, glioma of the retina, and melanoma of the choroid leads him to the conclusion that the blood is the important factor, but he points out that discrimination is necessary in translating the old language of cancer as a blood disease into the more exact technical terms of modern research. The blood, he holds, is implicated in various ways to the same end; in chorion-epithelioma it is acted upon by a ferment diffused from the foetal epithelial cells, and the blood thus altered provides the food for the new growth; in mouse cancer a dyscrasic state of the blood due to interbreeding is assumed, and to the two forms of intra-ocular malignant disease other explanations apply. The blood and the blood vessels are inseparable, and when in disease the cells of a part feed on the blood, the cells most concerned are in the walls and adnexa of the blood vessels. Malignancy always means that the cells of an organ or tissue take to feeding on the substance of the red blood corpuscles instead

[1] *Some Conclusions on Cancer*. By Charles Creighton, M.D. London: Williams and Norgate. 1920. (Roy. 8vo, pp. 378; 115 figures. 42s. net.)

of metabolizing it, storing it up, or passing it on; and a disproportionate nucleus is regarded as a sure index of a structure built up from ferment-reduced blood. Thus a cancer is a blood-built structure composed of blood vessels and gland tissue. The analogy with the physiological blood-built structure of the placenta, on which Dr. Creighton has written much, would be more complete if syncytium were more generally present in morbid growths than is now recognized, and this from his own observations he believes to be the case.

TEXTBOOKS OF HYGIENE.

A VOLUME consisting of over 400 pages, even dealing with so wide a subject as public health, can hardly be included among those termed cram books, and there are many other reasons why *Hygiene*,[2] by Dr. JAMESON and Mr. MARCHANT, should not be so categorized. The authors describe it as an attempt to epitomize the views of accepted authorities and the most recent work in the huge subject of hygiene. We may state at once that they have not been unsuccessful in that endeavour. They have produced a textbook well planned, easy of reference, and reliable. Far more than the surface of the subject has been scratched, but the student is not taken into such depths as to obscure his vision for essentials. Whatever other textbooks he may have studied, he will almost certainly find in this one either something entirely new or a specific subject put forward in a new form. The arrangement of the work follows very much on the lines of older textbooks. The earlier chapters deal with water supplies, the removal and treatment of waste matters, ventilation and heating, soils and building construction, and with food supplies. These are followed by chapters on infant mortality, child welfare, school hygiene, prevention of disease, industrial diseases, vital statistics, sanitary law, meteorology, and some notes on chemistry. The section dealing with industrial diseases, though covering only nine pages, gives evidence of much painstaking inquiry, and will be helpful for examination purposes, but it is capable of considerable extension. On page 169 reference is made to the influence upon the incidence of tuberculosis of back-to-back houses, and mention is made of the Salford investigations. There have, however, been much more recent inquiries than that at Salford, and with more convincing results. The statement on page 261 that the appointment of a medical officer of health to an urban or a rural district cannot be terminated without the consent of the Ministry of Health is not yet correct. The full title of the Order under which these officers are appointed is "The Sanitary Officers (outside London) Order, 1910." The proof reading of this work has been remarkably well done, though on page 302 the Infectious Disease Notification Act is described as the Infectious Diseases Act. Such minor slips will no doubt be remedied in the future editions which will deservedly be called for.

One of the earliest textbooks included in Lewis's Practical Series was that on *Public Health Laboratory Work*[3] by Professor HENRY KENWOOD. The seventh edition is concerned only with the chemical branch of the subject. Part VII, which appeared in former editions and referred to microbiology, is omitted; the subject is to be dealt with in a separate volume from the pen of Professor Sheridan Delépine. The general arrangement of previous editions has been followed in this, the subject being dealt with under the headings of the examination of water, sewage and sewage effluents, soil, air, food and disinfectants. There is ample evidence of drastic revision of former editions, and there has been a fearless combing out of superfluous paragraphs and of matter which research in recent years has rendered out of date or unreliable. For example, in 1908 Professor Kenwood, when writing of the presence of zinc in water supplies, stated that a trace of this metal (not exceeding one-tenth of a grain to the gallon) might perhaps be allowed, but he now states that he has found up to one grain per gallon in many waters which have been in contact with galvanized iron and used for many years in public institutions without any evidence of harm. His opinion now is that one-third of a grain per gallon should not be exceeded. It would have been helpful if the author had expressed his own opinion more freely on the question of dirt in milk. It has been suggested, he writes, that as a general rule the recoverable dirt should not be allowed to exceed two parts per 100,000 by weight. As a rough household test half a pint of milk placed in an ordinary tumbler should not throw a visible sediment in two hours. He admits, however, that, as dirt may be partially removed by trade filtration, leaving behind the harmful bacteria, the only satisfactory standards are those based upon bacterial counts. In the section on food examination he discusses at some length the question of poisoning by food. He is in agreement with present-day observers that ptomaines are not the cause of extensive outbreaks of meat poisoning, which are, he considers, commonly caused by the bacilli of the Gaertner group. The section on water examination has been subjected to most careful revision, and the concise and clearly expressed instructions for carrying out various processes have been made even more lucid and intelligible. For this reason alone, if merely as a time saver, medical officers of health and others engaged in public health laboratory work will find this book invaluable.

A MANUAL OF NEURASTHENIA.

IN *A Manual of Neurasthenia* by Dr. I. GEIKIE COBB[4] the general practitioner will find a thoroughly helpful and comprehensive account of a disorder which bulks largely in his daily work. The book is written on sound, practical lines. The symptom-complex of neurasthenia is clearly described; the etiological factors are discussed in detail; a full account is furnished of the various mental and physical symptoms and objective signs; the treatment is indicated under the headings of general hygiene, principles and details of diet, use of drugs, climate, psychotherapy, electricity, and other special methods; and the points of differentiation between neurasthenia and conditions for which it might be mistaken are indicated in schematic form.

Dr. Cobb regards neurasthenia as a definite clinical entity. He finds (p. 205) that "the cardinal symptoms and signs are so constantly associated that they form as certain a correlate as those of any well-recognized disease. The presence of undue fatigue, typical headaches, digestive disturbances, and sensory abnormalities points to the presence of the disorder." In regard to this vexed question, it may be said that the range of cases in which neurasthenia will be regarded as an adequate diagnosis will no doubt tend increasingly to diminish. Further research will probably make it clear that many cases of nervous exhaustion are symptomatic only, and the expression of definite and specific underlying causes. Since the disorder was first described the tendency has been all in this direction. Dr. Cobb would seem to have included as much and no more in his neurasthenic group than the facts warrant in the present state of our knowledge. Since the diagnosis of neurasthenia is often made to cover almost any type of nervous illness, he has very wisely made perfectly clear and definite what he includes under the concept of neurasthenia. He excludes many symptoms which the term originally included, such as obsessions, phobias, and anxiety, but he uses it in a wider sense than Freud by including the chronic form of nervous exhaustion occurring in middle age, as well as the restricted group in which auto-eroticism is the pathogenic factor. Since he adopts this wider conception of neurasthenia, Dr. Cobb naturally finds a number of factors instrumental in its production, and he devotes considerable attention to toxic and other causes of a physical nature. A full recognition of mental factors is given, and the view is expressed and developed at length that emotional influences cannot be limited to the sexual sphere, but that other instinctive trends have to be reckoned with in the production of nervous exhaustion. While we quite agree that conflict as a factor in the production of neurasthenia is certainly not confined to the sexual impulse, yet the

[2] *Hygiene.* Specially adapted for those studying for a Diploma in Public Health. By W. Wilson Jameson, M.D.Aberd., M.R.C.P., D.P.H., and F. T. Marchant, M.R.San.I. London: J. and A. Churchill. 1920. (Demy 8vo, pp. 404; 18 figures. 18s. net.)

[3] *Public Health Laboratory Work (Chemistry).* By Henry R. Kenwood, C.M.G., M.B., D.P.H., F.C.S. Seventh edition. London: H. K. Lewis and Co., Ltd. 1920. (Demy 8vo, pp. 451; 4 plates, 85 figures. 15s. net.)

[4] *A Manual of Neurasthenia (Nervous Exhaustion).* By Ivo Geikie Cobb, M.D., M.R.C.S. London: Baillière, Tindall, and Cox. 1920. (Demy 8vo, pp. xvi+366. 12s. 6d. net.)

important fact that neurasthenia in young people is often closely related to active auto-erotic tendencies is perhaps insufficiently stressed. The term "auto-eroticism" is hardly explained sufficiently to be helpful to the practitioner. It is not made clear that this term in relation to neurasthenia refers to onanistic tendencies which lead to fatigue symptoms through excessive expenditure of nervous energy. Though the question of mental conflict is also involved, the sexual etiology in neurasthenia would seem, in a sense, to be physical in character as contrasted with the purely psychogenic origin of the symptoms in the psychoneuroses. We venture to make this comment because we think more attention to this difficult subject in the section devoted to treatment would have been of practical value to the practitioner, as it is a question he has constantly to face in dealing with his young patients.

The chapters devoted to symptomatology are particularly clear and complete, and due emphasis is laid upon diagnostic points. The treatment also is described fully, and the value and limitations of the various therapeutic agents excellently discussed. The detailed instructions herein found contrast favourably with the either too vague or too specialized methods of approach which characterize much that is written on the neuroses. In a subject such as neurasthenia, which presents peculiar difficulties and which may be investigated from so many points of view, it is inevitable, and no doubt necessary, that certain causal factors should be over-emphasized by observers with specialized interests. Dr. Cobb has managed, however, to present a broad and impartial account of the disorder. In his preface he says: "The exclusive preference shown by many . . . for the hypothesis of physical origin on the one hand or of mental on the other, has made the task of steering between the Scylla of mind and the Charybdis of body a difficult one." The task is undoubtedly difficult, but in the present instance it may be regarded as having been successfully accomplished.

NOTES ON BOOKS.

THE mere fact that a work devoted exclusively to the subject of impotence has survived five editions is—as its author points out in its preface—an indication that such a work was required. It is certainly true that the failure of sexual desire and sexual power may be the cause of a great amount of mental suffering, and that the subject is thereby endowed with considerable importance. The study of sexual impotence embraces such widely varied themes as psycho-analysis and endocrinology. Impotence may be a symptom of many different pathological conditions, and to arrive at a correct diagnosis demands considerable clinical acumen. Three-quarters of Dr. VECKI'S work[5] is devoted to a discussion of the various forms of impotence, and the final chapters deal with treatment. The great number of the methods of treatment that have been advocated by different authorities is an indication of their inefficiency. Yet, in the words of the author, "there is hardly any one of them that could be entirely dispensed with because there are cases in which one or the other may be of some use." Of the utility of retaining some of the methods described in this work we are sceptical. Even the enthusiasm of Dr. Vecki fails when describing some of the hundred and one therapeutic measures that have been advocated. For the moment the hope of the impotent would appear to be in the realm of endocrinology. In the concluding chapter is an interesting summary of present knowledge on the subject of the endocrine glands and their relation to the sexual function. The author has wisely confined himself to the task of supplying his reader with facts and has resisted the temptation to indulge in vague speculations.

A Dictionary of Scientific Terms[6] by I. F. and W. D. HENDERSON, of the University of Bristol, contains about 10,000 definitions, including those of several hundred lately coined expressions, many of which have not hitherto found their way into a dictionary. In addition, it gives the pronunciation and definition of the terms used in biology, botany, zoology, anatomy, cytology, embryology, and physiology. The Greek words given in connexion with derivations have been transliterated, because, as the preface states, students of science and medicine are considered to be seldom acquainted with that language, and the transliteration of certain combinations of letters represents the sound rather than the exact letters of the original—for example, branchia appears as brangchia, and korumbos as korymbos. A superficial examination of the work gives an impression of its utility to medical students in their early years, and of the labour and care the compilers have devoted to this well-printed work. It does not include terms used solely in clinical medicine and surgery and in pathology.

[5] *Sexual Impotence.* By V. G. Vecki, M.D. Sixth edition, revised. Philadelphia and London: W. B. Saunders Co. 1920. (Demy 8vo, pp. 232. 16s. net.)

[6] *A Dictionary of Scientific Terms.* By I. F. Henderson, M.A., and W. D. S. Henderson, M.A., B.Sc., Ph.D., F.R.S.E. Edinburgh: Oliver and Boyd. 1920. (Demy 8vo, pp. 360. 18s. net.)

PRESENTATION TO DR. J. A. MACDONALD.

THE following further subscriptions have been received from November 29th to December 31st, 1920, in response to the appeal published in the JOURNAL of July 24th (p. 129), towards a presentation to Dr. J. A. Macdonald on the occasion of his retirement from the office of Chairman of Council of the British Medical Association which he had held for ten years. Subscriptions of any amount not exceeding five guineas should be made payable to "The Macdonald Presentation," and sent to the Medical Secretary, British Medical Association, 429, Strand, London, W.C.2.

ELEVENTH LIST OF SUBSCRIBERS.

	£	s.	d.
Brought forward from last list of subscribers ...783	0	6	
Auck and (New Zealand) Division, per Dr. W. A. Fairclough...	4	4	0
Birkbeck, Dr. L. H. C., Taunton	1	1	0
Brook, Mr. W. F., Swansea	1	1	0
German, Dr. A. W., Liverpool	1	1	0
Hinnell, Dr. J. S., O.B.E., Bury St. Edmunds ...	1	1	0
McNidder, Dr. J., Hull ...	2	2	0
Robinson Dr. E. S., Stourport	0	10	6
Tireman, Dr. A. L., Hull ..	2	2	0
Wiggins, Dr. C. A., Uganda	1	1	0
Per Dr. J. MacNidder (Honorary Secretary, E. York Division):			
Lilley, Dr. G., Hull ...	1	1	0
Rodger, Dr. T. R., Hull..	2	2	0
Stewart, Dr. F. N., Hull	0	10	6
Sunderland, Dr. R. A. S., Hull	1	0	0
Upcott, Mr. H., Hull ...	1	1	0
Wilson, Dr. Albert, Hull	0	10	6
Per Dr. Taylor (Honorary Secretary, Dudley Division):			
Beasley, Dr. J. G., Rowley Regis	1	1	0
Beasley, Dr. J. H., Blackheath	1	1	0
Dudley, Dr. G. J., O.B.E., Stourbridge...	1	1	0
Francis, Dr. L., Stourbridge	1	1	0
Freer, Dr. W. L., Blackheath	1	1	0
Griffith, Dr. R. F., Netherton	1	1	0
Grindlay, Dr. G., Stourbridge	1	0	0
Hardwicke, Dr. E. W., Lye	1	1	0
Higgs, Dr. T. F., Dudley	1	1	0
MacQueen, Dr. A. D., Blackheath	1	1	0
Mason, Dr. P. J., Great Bridge	1	1	0
O'Dowd, Dr. J. A., Netherton	1	1	0
Plant, Dr. H. W., Pennett	1	1	0
Smith, Dr. F. M., Quarry Bank	2	2	0
Smith, Dr. H., Dudley...	1	1	0
Watkins, Dr. B. V., Clent	1	1	0
Per Dr. C. L. Hawkins (Honorary Secretary, Bromsgrove Division):			
Ambrose, Dr. W. C., Barnt Green	0	10	6
Banks, Dr. R. McL., Redditch...	0	10	6
Bodger, Dr. S., Studley.	0	10	6
Coaker, Mr. F. W. J., Bromsgrove	0	10	6
Collier, Dr. H. E. Redditch	0	10	6
Dick, Dr. M. I., Alvechurch	0	10	6
Hawkins, Dr. C. L., Barnt Green	0	10	6
Rae, Dr. A. J., Bromsgrove	0	10	6
Smith, Dr. P., Redditch	0	10	6
Stevenson, Dr. J., Redditch	0	10	6
Per Dr. Moyes (Honorary Secretary, N. Northumberland Division):			
Badcock, Dr. V. E., Cornhill-on-Tweed ...	1	1	0
Lawrie, Dr. F. W. K., M.C., Alnwick	0	10	6
Macaskie, Dr., Bamburgh	0	10	0
McDonald, Dr. J., Belford	1	0	0
Per Dr. Rollason (Honorary Secretary, Coventry Division):			
MacQuaide, Dr. H. C., Coventry...	1	1	0
Rollason, Dr. N. J. L., Coventry...	1	1	0
Snell, Dr. E. H., Coventry...	1	1	0
	£832	15	6

OWING to the rise in the cost of printing and paper the subscription to the *Nederlandsch Tijdschrift voor Geneeskunde* for 1921 has been raised from Fl. 18 to Fl. 25.50.

PROFESSOR OTTO LANZ of Amsterdam, a native of Switzerland, has resigned his membership of the Société Internationale de Chirurgie as a protest against the exclusion of the surgeons of Central Europe.

DR. CARLIER, professor of clinical urology in Lille University and an authority on diseases of the prostate, has recently died.

IN the various German universities 85,000 students were enrolled last summer as, compared with 55,000 in 1914. Of the total number 18,319 were medical students and 4,723 dental students, as compared with 16,048 and 976 respectively in 1914.

A SOCIETY entitled "Société Bruxelloise de laryngologie" has recently been formed at Brussels. Its meetings will be held monthly.

REFORM IN MEDICAL EDUCATION.

[FROM A CORRESPONDENT.]

(*Continued from page 22.*)

I.

REVISION OF THE MEDICAL CURRICULUM.

THE replies from the schools as to education in preventive medicine seem to have had a great effect on the outlook of the Education Committee and the General Medical Council, for in a full report to the Council at the May session of 1920 it urged that the numerous considerations and recommendations submitted by the schools raised the whole question of revision of the medical curriculum apart from, and in addition to, the teaching of preventive medicine. This view was strengthened by the publication of Sir George Newman's "Notes on Medical Education in England," and the Edinburgh Pathological Club's "Enquiry into the Medical Curriculum."

It may be noted that the replies from the schools were in general very sympathetic in respect to the query by the Council concerning "teaching regarding the maintenance of health from birth onwards." It appears, indeed, that the organizations for child welfare developing all over the country are being in many cases linked up with the medical schools for the purpose of teaching to students the prevention of disease from infancy onwards. The Middlesex Hospital School writes that "in the case of diet and childhood considerable instruction is given in connexion with the infant welfare department, but we are fully alive to the fact that instruction on the prevention and arrest of disease might be amplified with considerable advantage." The University of Edinburgh replies that "opportunity for the study of infant nutrition and dietetics is furnished also by the Municipal Scheme of Child Welfare, and the students who attend are trained in the administration of the preventive clinics." University College Hospital School "wish to call attention to the fact that at this hospital there is a well-equipped maternity and child welfare centre in which the feeding and the health of infants and children is taught to the students." In connexion with St. Mary's Hospital School, the Paddington Green Children's Hospital "secures that the student shall have special instruction in children's diseases, including, of course, the diet of infancy." At the University of Leeds "the formation of a special children's department at the General Infirmary, including a section for the nutritional diseases of infants, has recently been decided on. The honorary officer in charge of the department will give a course of instruction in the hygiene and diseases of infancy and childhood, infant feeding, etc. It is also proposed to link up the infant welfare work in the city of Leeds with that of the new department." The Council's inquiries on this subject of preservation of the health of infants and children are fortunate, therefore, in coinciding with the establishment of facilities for the giving of the desired instruction. Many other passages in the replies from the schools point in the same direction.

As regards preliminary education in general knowledge it was the view of the Committee that "much advantage would be gained were the minimum age at entrance raised to 18." Concerning the earlier sciences it was urged that "the first duty of the teacher is to teach his own subject as a science" and that he should not be called on to include in his syllabus any material which can be better taught at a later stage of the curriculum. The importance of the study of embryology was insisted on in connexion with the teaching of anatomy, but, on the other hand, it was thought that the student should be spared much of the vast accumulation of minute details with which his text-books are loaded. As to pathology and bacteriology the Committee quote Sir George Newman, who wrote: "The fact is that, broadly speaking, pathology is medicine; *it is the study of disease;* it is the first great clinical subject of the curriculum." About normal psychology, of fourteen bodies who have given attention to the interrogation in the circular letter, the majority hold that some instruction should be given by the lecturer in mental diseases, but few regard the subject as falling within the domain of physiology.

These are samples of observations and suggestions. Space forbids further illustrations, but, as pointed out in the report, very especial emphasis was given in many replies to the question of proper co ordination of studies. Preventive medicine must largely be in the hands of the clinicians, and an extension of the period of clinical study would, of course, mean a lengthening of the curriculum, though "a block introduced into the course by making provision that the examinations in pharmacology and pathology must be completed before the commencement of the recognized fourth year, could it be made effective, would at least ensure two full years for undivided clinical study"; but that proposal "might have to be accompanied by a diminution and simplification of the teaching demands" of the earlier subjects.

At the end of a full and most thoughtful report the Education Committee, as already indicated, felt compelled to make the following recommendation to the Council:

> "The Committee begs to submit to the Council the foregoing report on 'The teaching of the preventive aspects of medicine,' which has been prepared by the Chairman after an analysis of the replies received from the teaching bodies. The Committee is of opinion that the questions which have been raised involve the revision of the whole curriculum in medicine, and suggests that the Council should remit to it for further report the consideration of the methods under which the process of revision may best be carried out."

The Committee's suggestion was accepted by the Council, and the outcome was embodied in a further report which was discussed by the Council at its recent session. This report concluded with three recommendations, which were dealt with separately.

Recommendation I.—Preliminary Sciences.

This recommendation included the four following items:

> "(*a*) That before registration in the *Students' Register* every applicant shall be required to have passed, in addition to the examination in general education, an examination in elementary physics and elementary chemistry conducted or recognized by one of the licensing bodies;
>
> "(*b*) That a student who has diligently attended an approved course of instruction in elementary biology in a secondary school or other teaching institution recognized by a licensing body may be admitted to a professional examination in elementary biology immediately after his registration as a student of medicine;
>
> "(*c*) That before registration as a student every candidate shall produce evidence that he has attained the age of 17 years;
>
> "(*d*) That specialized instruction in physics, chemistry, and biology, in their application to medicine shall be included in the professional curriculum, the teaching arrangements in each case to be determined by the licensing body."

These are mainly self-explanatory. It is desired that, in addition to his examination in general education, the student shall have received instruction and passed an examination in elementary physics and chemistry. By this transference from professional to preliminary study the medical curriculum proper will be correspondingly lengthened, and it is regarded as certain that sufficient instruction in these subjects can be obtained at many of the secondary schools at least in England and Scotland, though in respect of Ireland the position is not so satisfactory. During the discussion in the Council an amendment was moved that biology, instead of being dealt with under (*b*) in the above recommendation, should be included with (*a*). This amendment was not carried, and the Education Committee's reason for proposing that there should be a difference was that not nearly so many schools have facilities for instruction in biology as in physics and chemistry. The proposal of the Committee to get over this difficulty as contained in (*b*) is ingenious—namely, that students who have at secondary schools acquired a sufficient knowledge of elementary biology can proceed to a professional examination in the subject immediately after registration, so that, in effect, all three elementary subjects will in such cases have been cleared out of the way before other studies are entered on. If, however, students have not had the facilities for instruction and examination in one or more of the three preliminary subjects, they can come to the medical schools for tuition, but they cannot be registered until the examinations in physics and chemistry have been passed. This would probably meet the difficulties in Ireland above referred to. Section (*c*) of the first recommendation—namely, that a student must have reached the age of 17 years, instead of 16 years as at present, was a natural corollary to (*a*) and (*b*).

Subsection (*d*) of the first recommendation—namely, that specialized instruction in physics, chemistry, and

biology, in their application to medicine shall be included in the professional curriculum—indicates one of the lines of reform which were under discussion by the Education Committee and the Council. These three elementary sciences in their direct application to the later parts of the curriculum, and especially to the clinical subjects, should be taught in connexion with such later subjects, whether as part of the particular course of instruction by the teachers of the clinical subjects, or in a short series of lectures or course of instruction in applied physics, chemistry, etc., the details being left to each individual school.

Recommendation III.—Subcommittees on Curricula.

Passing by Recommendation II for the moment, Recommendation III has now to be referred to. It is as follows:

"That the Council approve the appointment of a number of special subcommittees, as detailed below, 'mixed' in constitution, and each containing representatives of clinical studies, to be charged with the duty of reporting to the Council on the nature of the several curricula, defining essential contents from the standpoint of the adequate training of the general practitioner; of advising as to the proper co-ordination of the work of instruction; and of making recommendations concerning the effective teaching of the preventive aspects of medicine:

1. The preliminary sciences, as related to medicine.
2. Anatomy and physiology.
3. Pathology and pharmacology.
4. Medicine, surgery, and midwifery."

In that connexion, an amendment in regard to Recommendation I was proposed in the discussion at the Council. The amendment was that a decision as to (*a*), (*b*), and (*d*) of Recommendation I should be deferred until the proposed subcommittee on the preliminary sciences had reported. The voting was equal and the amendment was not carried.

Another amendment raised the question whether the preliminary examination in science should be imposed before the present standard of matriculation examinations is raised.

The importance of this point was admitted, and by general agreement an addition was made to Recommendation I as follows:

"That the minimum standard of general education required by the Council for registration as a student should be raised to a standard equivalent to that demanded in other learned professions previously to, or concurrently with, the coming into operation of the requirement of a preliminary examination in science before registration."

Recommendation II.—Professional Examinations.

Recommendation II, which raises a fresh and most important question, may now be referred to. It has long been recognized that in the study of medicine for degree or licence, examinations have had far too much influence on the work of both teacher and student. Under the present system the student's primary object necessarily is to pass his examinations and obtain his legal qualification to practise medicine. He hopes and assumes that in reaching the desired goal he has also acquired a real knowledge of medicine fitting him for practice, but the knowledge is more or less incidental to the work of getting up the subject in such a fashion as will enable him to obtain his diploma. Examinations are indeed a continual nightmare to the ordinary student. Similarly, the teacher, especially if he does not examine his own pupils, feels it his duty to endeavour to secure that his students shall pass their examination in his subject, and is bound to work to that end. The General Medical Council has been so impressed with the undue influence which the examination system exerts on teaching and study that it now proposes to make it possible to give some weight to the student's record of work done in the course of his curriculum. Recommendation II is as follows:

"That in the regulations for the several examinations it shall be provided that the examiners be empowered, in assessing marks, to take into account the duly attested records of the work done by the candidates throughout the course of study in the subject of the examination."

There is no proposal that examinations be done away with, or that the granting of a right to practise should depend on the opinions and reports of the teachers regarding the student's career, but there is at least in this recommendation the element of recognition of the value of the work done by the candidate during his five or six years of medical study. It seems altogether right that this new factor should be introduced, but it will require to be carefully safeguarded against abuse. When a teacher takes part in the examination of his own pupils, some small element of prejudice for or against an examinee may perhaps inadvertently have crept into the professorial mind owing to demeanour in class or other such cause. Any feeling of this sort may no doubt have some effect under the present system, but there might be more opportunity for its influence if the teacher's record of his student's work were also to count in the decision. On the other hand, where teachers expect to have no direct share in the passing or rejection of their students at professional examinations, there might be some risk of different standards by different teachers in making their records of class work. These are considerations to be borne in mind in working out a scheme, but by no means reasons for rejecting the proposal. In many cases, of course, there is no doubt at the end of the oral and practical examination that the candidate should pass, whilst in many other cases there is no doubt that he should be rejected; but in a doubtful or borderland case a fair and impartial record of a student's work might often turn the scale. One student may be nervous and hesitating under examination, and yet may have done excellent work throughout his curriculum; his record should help to pass him. Another may be glib and skilful in making a parade of knowledge with very little reality behind it; his record should help to reject him. If effect be given in the schools to the new scheme thus proposed by the Council—and it is to be observed that the question whether note of the record should or should not be taken is to be left to the discretion of the examiners—it will be watched with interest and with a hope for good results by all who have the improvement of medical education at heart.

(To be continued.)

THE HEALTH OFFICE OF THE LEAGUE OF NATIONS.

IN a leading article, entitled Health and the League of Nations, on September 11th, 1920, an outline was given of a scheme for an International Health Bureau under the League of Nations. The scheme was drafted by the International Health Conference convened by Dr. Addison last April, and was adopted subsequently by the Council of the League. The proposal has since been submitted to and approved by the first assembly of the League of Nations held on December 10th at Geneva, and it is now possible to fill in some of the details. It is proposed that the Office International d'Hygiène Publique should remain in Paris to form the basis of an International Health Organization. The office was founded in accordance with the international agreement reached at Rome on December 9th, 1910, to which all the principal countries, with the exception of Germany and Austria-Hungary, subscribed. The new organization will advise the League of Nations on all questions arising out of Articles 23 (*f*) and 25 of the Covenant of the League. Those in control of the International Office of Public Health are said not only to consent to this arrangement, but also to desire and welcome it. The permanent International Health Organization will consist of (*a*) the International Office of Public Hygiene, which, completed in a certain way, will become the General Committee, (*b*) a technical or executive committee, and (*c*) an International Health Secretariat. The General Committee will be composed of the delegates actually nominated to the International Office of Public Health according to the Rome Convention of 1907, of those subsequently appointed by the countries which were parties to the Convention, and of those nominated by countries not parties to the Convention but members of the League of Nations.

The functions of the health organization will be as stated in our issue of September 11th—namely, (1) to advise the League on matters of health; (2) to establish closer relations between the health services of different countries; (3) to organize more rapid interchange of information when it is necessary to take immediate precautions against disease (such as epidemics) and to

simplify rapid action where such information affects several countries; (4) to initiate or revise international agreements for administrative action in health matters, and especially to examine the questions to be submitted to the permanent and general committees with a view to international conventions; (5) to co-operate mutually with the International Labour Organization for the protection of workers against industrial diseases and injuries; (6) to co-operate with the League of Red Cross Societies and similar bodies, in accordance with Article 25 of the Covenant of the League; (7) to give advice on international questions of health to other voluntary organizations; (8) to organize health commissions when requested.

The General Committee is to meet at least once a year in Paris, and the Council of the League has power to call an extraordinary meeting if necessary. The General Committee may appoint subcommittees to study special questions. Any delegate may employ technical advisers, but such advisers will not have the right to vote.

The Technical Committee will consist of four members from the delegates of the States permanently represented on the Council of the League, five other members chosen by the General Committee with due consideration of scientific value and geographical representation, the President of the General Committee, a representative of the League of Red Cross Societies, and a representative nominated by the International Labour Organization. The Technical Committee will meet at least four times a year, and can be called more often in the event of urgency. It can form subcommittees, and call upon technical advisers in special questions. Its deliberations and those of its subcommittees will be submitted to the General Committee and to the Secretary-General of the League of Nations through the Medical Secretary. The President and members of the Technical Committee will be chosen for three years, but will be eligible for re-election.

The Secretariat will consist of a Technical Secretary and staff. The Technical Secretary will be nominated by the Committee in agreement with the Secretary-General of the League. He will have the right to communicate directly with the Secretary-General and with the health services of all the Governments, and to attend all meetings of the Technical Committee, of the General Committee, and of all subcommittees. The staff will consist of persons of different nationalities, nominated by the Technical Committee in consultation with the technical secretary. The location of the International Secretariat of Health will apparently be the same as that of the League of Nations.

The object of all this machinery appears to be to elaborate new international agreements and to revise agreements already existing. Such new projects or revisions will be submitted by the Technical Committee for examination and approval by the General Committee; for the adoption of the agreement a two-thirds majority of the General Committee will be necessary. When any proposed agreement affects international commerce or communication the Committee must confer with the Economic Organization and with the Organization of Communication and Transport. If the General Committee approves the projected agreement it will be signed by the President and by the Technical Secretary, and handed to the Secretary-General of the League. The Council of the League will then submit the proposed agreement to the Governments interested, which will be invited to instruct their plenipotentiaries to sign the agreement without delay. Each country will be asked to ratify such agreement before the expiration of one year, or before the expiration of that period to notify the Secretary-General of the reason why it has not done so. Each agreement ratified will be registered by the Secretary-General, but it will be binding only on the countries which have ratified it. The members of the General Committee undertake to present annual or special reports on the measures taken in each country to carry out the clauses of the agreement. Non-signatory countries will be invited to furnish reports on matters bearing on the objects of the agreement.

It is evident that the proposed International Health Organization is grandiose in nature, and under certain conditions may have far-reaching results. But it often happens that councils, such as that of the League of Nations, having set up a vast machinery of committees and subcommittees, break up with a feeling that they have accomplished a great work; whereas they have not dealt with the vital factor in the situation. If the International Health Organization is to be anything more than a method for dealing with unemployment amongst officials, the really important matter is the appointment of the superman who is to be the Technical Secretary. On him will depend the success or failure of the whole organization. In the first place, the secretary must be a medical man of wide outlook and extensive knowledge, not necessarily an expert in any one branch of medicine. Secondly, he must have administrative capacity. Thirdly, he should speak two or three languages in addition to his own. Fourthly, he should have the power of choosing suitable people to fill gaps in his own knowledge or capacity. Lastly, he must possess infinite tact in dealing with governments and with various organizations, many of which will be jealous of their prestige and position. With energy and enthusiasm such a man might make much of the International Health Organization, notwithstanding all its complicated machinery of offices, councils, committees, and subcommittees. Without such a man it will be but a meagre feast to which the General Committee at its annual meeting and the Technical Committee at its quarterly meetings will sit down. It will be interesting to see which nation will produce this prodigy. He may become Registrar-General for the World, surveying mankind from China to Peru.

CUMBERLAND TUBERCULOSIS COLONY.

As the Cumberland Council was the first in the field in establishing an experimental farm, it is now one of the first councils in England—if not the first—to establish a colony for the industrial treatment of tuberculosis as a charge on the public funds. Dr. Morison, the medical officer of health for the county, first suggested the scheme in 1914, but the outbreak of the war prevented any steps being taken. In September, 1919, however, the Council purchased the Englethwaite Hall Estate at a cost of £5,000. The estate consists of a mansion house, a small residence, a cottage, outbuildings, a range of glass-houses, and about 32 acres of land. Its situation is in many respects ideal. It stands on rising ground, with an easy gradient, on gravel soil, and has a southern aspect. It is in a sparsely populated district, the nearest village being three-quarters of a mile distant, and it is within three minutes' walk of a station on the Midland Railway, and about six miles from Carlisle.

The necessity for such an institution is apparent. Consumption is still a vital problem, and it is estimated that since 1914 there has been an increase of 12 per cent. in the death roll from tuberculosis in the country. In Cumberland 2,675 cases in all have been notified since 1912, while the number of deaths in the county during the last six years has totalled 1,461. There is in the county a sanatorium with sixty-four beds for cases of tuberculosis, but, as stated in a leading article in the JOURNAL for December 4th, 1920, the results of open-air or sanatorium treatment "have admittedly been disappointing, and this experience has not been peculiar to this country; nowhere have the first hopes been realized." The enthusiasm with which the colony treatment of tuberculosis has been taken up points strongly to the fact that the sanatorium treatment is not a final solution of the problem, and this new experiment will be watched with interest. The first colony of the kind was started near Edinburgh in 1910, and at the present time several English county councils have schemes in progress for the establishment of tuberculosis colonies; while, of course, the Papworth colony, as is well known, is interested in the subject.

Although there has been no formal opening there are already twenty-five inmates in residence at Englethwaite, and, with the approval of the council, plans have been submitted to the Ministry of Health which will increase the accommodation to 100 patients. In the first instance it is intended that preference shall be given to ex-service men. During the period of reconstruction and adaptation of the premises to the present purpose Dr. Kenneth Fraser has taken charge, and he has devoted himself whole-heartedly to the work. He has had the advantage of the advice and help of Dr. Morison, an official with progressive views and expert knowledge, and has been well backed up by an enlightened and sympathetic Hospital Committee. On the invitation of this committee representatives of the press in the county have recently visited

the colony and the public have been made acquainted with full details of what has already been accomplished.

Dr. Mark Fraser, a brother of Dr. Kenneth Fraser, has been appointed resident medical superintendent, and has taken up his residence in the smaller detached house in the grounds, and already a beginning has been made with several industrial occupations. A market garden of about eight acres has been started, while poultry keeping with the intention of going in for egg production on an extensive scale has been commenced. Some hundreds of day-old chicks have been bought from strains of high-laying records. For the present year only the rearing of some hundreds of Game Cross Orpingtons and other varieties for sale for table use is being developed, in order that some capital outlay may be written off within twelve months, and it is also intended to fatten geese and ducklings for the market. A start has been made with a joinery department, and a cabinet-making department will be run in combination. Some six shelters of an excellent model have been purchased from the Papworth colony, and one or two huts, one semi-intensive poultry house, and one breeding pen have been bought. These have been erected by the patients, and it is intended that all future constructional work will be done by the colonists themselves. Some military huts have been purchased and converted into workshops. Here boot and shoe repairing departments have been organized, and clog making has been started. Pig keeping is another industry which is contemplated.

The workshops are being run on strictly commercial lines, and the whole of the profits, after allowing a bonus for the men, will go to a fund for the benefit of the patients themselves, in the way of providing clothing and all the things which come under the heading of "after-care." There will be plenty of work for every inmate. Each case is being carefully studied as to his future occupational outlook. The miner can forsake his trade and become a market gardener; the barber can become a carpenter. It has not been found that men have any hesitation in so drastically reconstructing their lives or that the results are disappointing. Certain trades will be taught in combination. Each patient in training for market gardening, poultry keeping, and pig keeping will receive at least three months' training in each, so that on his discharge he may be fit to take up a small holding.

Even after discharge the medical superintendent will keep the men under supervision, and if any show signs of a return of the disease arrangements will be made to take them back to the colony. It is hoped, of course, after discharge that the men will be able to earn their own living at the trades which they have been taught, but it is considered that no colony scheme will be complete which does not provide housing accommodation for the colonists who, after the completion of their training, desire to remain on the colony. This means village settlements for tuberculous patients.

These village settlements will amount to the segregation of tuberculous patients from the general community, and should be an important factor in the stamping out of tuberculosis. Although for the time being these have been turned down on grounds of national finance, the question is bound to be reconsidered at an early date, because on the successful solution of the problems of "after-care" of which these settlements must form an important part, the whole future of the colony idea depends. Meanwhile at Englethwaite the outlook is promising. The equipment has been carefully selected, and is of the best quality, and the general arrangements have met with the cordial approval of the representatives of the press of the county.

ASSOCIATION OF CERTIFYING FACTORY SURGEONS.

THE annual meeting and dinner of the Association of Certifying Factory Surgeons were held at the Queen's Hotel, Manchester, on December 15th, 1920, under the presidency of Sir THOMAS FLITCROFT. The regular business of the meeting included the election of officers for the coming year, Sir Thomas Flitcroft, Dr. W. F. Dearden, and Dr. T. Watts being re-elected to the offices of president, honorary secretary, and honorary treasurer respectively. The auditors' report showed the financial position of the association to be highly satisfactory.

The report of the council, in dealing with the decline in membership during the war, urged upon members the necessity for assisting the efforts of the secretaries by personal canvass of non-members or by at least sending in their names. Particular interest was taken in the section of the report dealing with correspondence between the association and the chief inspector respecting increase of fees. Considerable dissatisfaction was expressed at the ineffectiveness of the two orders issued by the Secretary of State concerning fees for certifying and for examinations under special rules and regulations respectively. The report pointed out the ambiguity of the two scales now in vogue. It showed that they might be interpreted, as had been the case with some certifying surgeons, to mean that the surgeon is entitled to the half-crown for the visit independently of the shilling for each examination, which, if officially accepted, would undoubtedly have brought about increased remuneration for all examinations. Unfortunately, the departmental interpretation had proved to be that the half-crown still occupied its time-worn position as a covering fee, the only difference being that it now covers the visit and two examinations instead of the visit and five examinations. Compiled as the result of an inquiry, figures were presented which showed that the scale for certifying could not produce any advance in payment for 53½ per cent. of the visits now made, owing to the small numbers presented on each occasion, this again indicating positively the futility of raising the basic examination fee without altering the covering fee for the visit. The chief inspector had stated, in a letter dated June 28th, that the Orders had increased the fees 100 per cent., but obviously this could only happen in the rare instances when five or more are to be dealt with at one visit.

It was unanimously agreed that the council should communicate further with the chief inspector, pointing out the views of the association and the firm conviction of the meeting regarding the necessity for rendering the 100 per cent. advance effective for all visits by making the covering fee 5s. instead of 2s. 6d. It was further agreed that the attention of the chief inspector should be directed to the circumstance that the Government is still paying the ancient fee of 3s. for two visits, two inquiries, and one report on each case of industrial disease or poisoning, with a suggestion that the minimum should now be not less than 7s. 6d.; also that all mileage rates should be the same—namely, 1s. for each mile or a portion beyond the initial mile.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee, held on December 14th, 1920, thirty cases were considered and £315 voted to twenty-five applicants. The following is a summary of some of the cases relieved:

Daughter, aged 61, of M.R.C.S.Eng. who died in 1885. She and her mother, who died in 1906, were left with very limited means. The applicant now has only £1 per week, and, owing to ill health and increased cost of living, finds it impossible to pay her way, and has got into debt. Voted £12 in twelve instalments and a special grant of £9 towards debts.

Widow, aged 71, of M.D.Glasg. who died in 1839. Lives with a sister who has £10 and applicant has £50. They endeavour to supplement this by letting rooms, and last year received from this source £55. Rent £34. Voted £12 in twelve instalments.

Widow, aged 75, of M.R.C.S.Eng. who died in 1883. Applicant was left totally unprovided for with four children, all of whom are now married but are unable to assist her. Her only income is the old age pension (10s. a week) and occasional gifts from friend. Pays 8s. per week for one room. Relatives who in the past helped are now all dead. Voted £18 in twelve instalments.

Widow, aged 31, of M.B.Edin. who had for two years worked on a pensions board and previously worked as a locumtenent and died in 1920. Applicant left quite unprovided for with two children, aged 4 and 5. Deceased's colleagues on the pensions board collected a sum of money to assist applicant, but this will soon be exhausted. Having to look after the children she cannot undertake a post. Would like to get the children into a home. Expenses: Rent £1 a week, board 25s. a week, storage of furniture 5s. Voted £12 in twelve instalments.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters J. Symonds, C.B., F.R.C.S., at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is overwhelmed, in these days of exorbitant prices for clothing and household necessaries, with applications for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles for the benefit of the widows and children who in happier times would not have needed assistance. The gifts should be sent to the Secretary of the Guild, 43, Bolsover Street, W.1.

British Medical Journal.

SATURDAY, JANUARY 8TH, 1921.

WHITLEY COUNCILS.

AMONGST the experiments in organization which we owe to the reconstruction period, few are of greater interest than the Joint Standing Industrial Councils, for which, as chairman of the Reconstruction Committee, the Deputy Speaker, Mr. J. H. Whitley, stood sponsor in 1917. Although the point of contact between the medical profession and the Whitley system may not be obvious at the first glance, it is not in reality far to seek. Apart from the fact that the substantial success of the experiment would profoundly modify the whole organization of industry, and would thus affect the conditions of life of every class in the community, the system is not applicable to industrial workers only; it has, in fact, been applied to the case of elementary and secondary teachers in the service of local education authorities. This being so, we cannot afford to overlook the possibility that the new machinery may be applicable, with or without modification, to the special problems of certain groups of medical practitioners. New circumstances often call for new expedients, and every fresh phase of organization merits careful scrutiny as a preliminary to either acceptance or rejection.

If neither of these arguments is calculated to break through the indifference of the average man to the method by which the tangible benefits he looks for from professional organization are obtained, there remains one of potent appeal. The graduated Civil Service bonus, with its sliding scale, has doubtless, during a period of rising prices, been his ideal standard for post-war remuneration. That bonus was the fruit of the deliberations of a subcommittee of the Civil Service National Joint Council, and the method of its achievement is worthy of consideration. Finally, whether for good or for ill, at least two National Whitley Councils at present exercise a determining influence on some of the conditions of employment of several thousand medical practitioners. That, however, is a position which demands more detailed study than the limits of this sketch will permit, but in face of these facts no apology need be made for focussing medical attention upon the principles and practice of Whitleyism at the present time.

The idea underlying the Whitley experiment is that there exists a substantial community of interest between the employers and the workers in any given industry or service. On this basis the procedure hitherto applied to the settlement of disputes by conciliation boards composed of representatives of the parties concerned may be utilized for their prevention. To accomplish this goodwill on each side is needed, and a continuous joint review by the parties concerned of the conditions from which disputes commonly arise. The sphere of the joint council thus conceived embraces the whole field of conditions of employment and remuneration. It is positive as well as negative, for the point at which prevention of disputes passes into the promotion of better conditions is hardly determinable.

The machinery proposed is a committee consisting of an equal number of representatives of the employers and the employed in each industry or service, exercising continuous supervision over conditions of employment, and acting as the accredited organ for communicating the wishes of the industry to the government and the public. A complete Whitley system for an industry involves the coexistence in each case of at least two and probably three types of joint council—the national, the district, and the works. In order to ensure adequate consideration of the needs of special grades and groups, the councils can work through special or grade committees, the members of which need not necessarily be members of the councils concerned. Although an impression to the contrary exists in some quarters, the adoption of the system is purely voluntary. Moreover, since only those reports may be issued to which a majority on both sides of the Council have agreed there is no fear of compulsion within the Council itself. In the absence of special business, the National Council is bound to meet at stated intervals to review the general situation.

Turning from the general principles to the practice of Whitleyism, we find in existence between sixty and seventy National Councils, and more than two hundred district and departmental councils. A few of these are in suspense, owing to the failure to secure a basis of agreement, or to the refusal of the parties concerned to put the agreement reached into effect. The majority of these Councils are of the orthodox industrial type, but, as already indicated, three cover various professional and administrative workers, and of these two—the Civil Service Administrative Clerical and Legal Departments Joint Council, and the Municipal, Clerical, Technical, and Administrative Services Joint Council—cover an appreciable number of medical practitioners. The third is the modified Whitley Council for Teachers, known as the Burnham Committee.

The record of these three councils includes the substitution of order for chaos in the grading and remuneration of the teaching staffs of local education authorities, the report under which the reconstruction of the Civil Service is now in progress, the report on the cost of living already mentioned, and the adoption of a scale of salaries and a grading scheme for the clerical and administrative workers in the municipal services. Here, it is true, some difficulty has arisen in the execution of the scheme. It is, however, too early to say whether the difficulties of the case will prove insuperable. This record is in itself sufficiently striking to call for a more detailed consideration of the method by which it has been produced. Meanwhile no verdict can be passed upon a system which is obviously in its infancy. All that has been attempted here is to record in outline the successive stages of its development, so that the reader who has not hitherto given attention to the system may be able to appreciate the conditions determining failure or success.

WHAT WE CANNOT AFFORD.

THOSE who recollect the exhortations to the Minister of Health to mobilize research armies for the "conquest" of zymotic diseases, which emanated little more than a year ago from precisely the organs which in the last weeks have held the extravagance of the Ministry up to public execration, will probably see in

the incident only another example of the frivolity or tendenciousness which are thought to characterize popular journalism. We believe, however, that the true explanation is less simple, and that it will be instructive to show that the optimism of 1919 and the pessimism of 1920 are the necessary consequences of an ignorance which it is the duty of our profession to try to dispel.

The fundamental distinction between the master of any intellectual discipline and the tyro is that the former sees his subject as a continuous whole, while to the latter it is a mass of disconnected ingenuities. Anyone may convince himself of this truth by, for instance, comparing the way in which a trained mathematician solves elementary problems with the procedure of an equally able but untrained worker; in the one case there is a certain uniformity about the methods of attack—the several solutions have a family resemblance; in the other each problem is special—a law to itself.

The application of this train of thought to medical science is direct. In the beginning man was a strict realist; there was "health" and there was "disease," or rather "diseases"; disease was something which attacked man, and the problem was to drive this something out or to keep it away. Thus the first doctor was the witch doctor. An attempt to break down primitive realism and exorcise the exorciser, the witch doctor, was made by Hippocrates, who taught that disease was not a thing but a process, and his system, as Sydenham wrote, "exhibited justly such operations of Nature as she puts forth in the diseases of humanity. The vain efforts of a wild fancy, the dreams of the sick man, it did *not* exhibit." The degenerate Greek science of the Empire reincarnated the witch doctor; for this Galen's realism and its pre-renaissance exponents are responsible. Medical research since Harvey has progressed in such a way that no intelligent medical student now runs much risk of becoming a realist. But some of the methods which have freed him from the ancient snare and, perhaps, the language in which he sometimes describes them, have deceived the public. Thus we, as a profession, connect by an unbroken chain of causality—let us suppose—diseases of the enteric group and contamination of the food supply. We are, indeed, satisfied that substantial protection against a particular micro-organism is afforded by antityphoid vaccine, against other organisms epidemiologically similar by paratyphoid vaccines. We do not, however, suppose that were the entire community so protected, but no measures taken to secure the food supplies, water-borne and food-borne diseases would cease to scourge mankind. We should, on the other hand, confidently anticipate the emergence of other epidemiological forms against each of which we should hope a specific protection might be discovered; but we should hold that as each form was conquered another would take its place in endless series, so long as the original source of and predisponent to disease existed.

Here precisely is the difference between the physician and the layman, or medical correspondent of the daily press. The layman is a realist. He honestly believes that if the "cause" of "influenza" could be shown on a plate and a suitable vaccine prepared, we should then be in a position to make an end of "influenza." This being admitted, there is no inconsistency between the demand for intensive "team work" at public expense and the furious outcry against, say, expenditure on dentistry or health centres. The layman, like the late German Emperor, dreams of a short brilliant campaign which shall "conquer" the zymotic diseases by discovering their "germs" and providing vaccines. The world is to go on just as before, save that these realities are to be eliminated. The physician remembers *naturam expellas furca tamen usque recurret*, and is less optimistic.

It has often been said that a community can purchase health, but the question must be faced whether the price to be paid is not so high that an attempt to find it will dissolve the community. It is not the business of medical men as such to answer that question, but it is their duty to state that the price must be very high, that the task of preventive medicine is something larger than the campaigning against germs.

The rationale of a hygienic life has been known for thousands of years. Celsus—with his prescription of a varied regimen, of moderate exercise, sometimes "to be in the city, sometimes in the country, the open air above all"—was at one with Dr. Leonard Hill; but his rules were qualified by a little phrase which in his time made them of small effect to a majority. They only applied to the man who could live as he pleased (*suae spontis est*). The task of the sanitarian has been to determine which of the factors governing the lives of those who cannot live as they please are most noxious. Eighty years ago the housing question was first seriously raised and urban sanitation taken in hand. The most pessimistic will not deny that the second problem is now less formidable; the most optimistic cannot regard the housing position with equanimity. In the meantime other difficulties have either been created or increased by industrial progress, such as the consequences of mass production in factories upon the health of the operatives. We now seek to know how the millions who must live their lives under conditions unlike those of primitive man, unlike those of the small minority to whom most ancient literature was addressed, can be safeguarded physiologically. In comparison with this problem that of "unemployment," a mere affair of distribution, is simple; yet the question of "unemployment" is still acute. Sir George Newman in his first report to the Minister of Health wrote: "Our business at the Ministry of Health is not to build for to-day or to-morrow, but for the future, not to attempt to settle forthwith this or that or the other local specific health problem, but to view such problems as parts of a whole, and slowly but surely to lay foundations which will endure."

This is the sentiment general among medical men, and is utterly repugnant to the intensive campaigning spirit of the lay journalist. We are not only to recognize for ourselves but to teach our fellow citizens the principle of continuity between physiology and pathology, so that they may learn that, for instance, dental prophylaxis is not an extravagant luxury, nor the teaching of hygiene in schools an attempt to deprive the poor man of his beer.

But above all we, as members of the medical profession, must preach the sermon that the way to national health is long and toilsome, and that the "path to a clear-purposed goal" does truly lead "a long, steep journey, through sunk gorges, o'er mountains in snow."

Those who tread this path, whether "bureaucrats" or private practitioners, need expect little encouragement from the popular press; they are more likely to encounter opposition and ridicule. But if, as we believe, this opposition is not the fruit of ill-will but of ignorance, the future is not wholly dark provided the medical man lives up to the original meaning of his popular appellation.

NEW YEAR HONOURS LIST.

THE New Year Honours List as it affects medicine is unusually short, and is chiefly remarkable for the recognition accorded to medical journalism, as an element in the life of the nation, by the knighthoods conferred on the Editors of the *Lancet* and of the *British Medical Journal*. Dr. William Hodgson, who also receives the honour of knighthood, has done much public work in the town of Crewe; he was a member of the town council for many years, and mayor in 1892–3. He has been a member of the Cheshire County Council since its formation; he is an alderman and vice-chairman of that body, and chairman of the Cheshire Education Committee. He is also a member of many other county committees, and has set an example to other members of the profession which should encourage them to take their share in the public life of the localities in which they practise. He is a member of the Insurance Acts Committee. Sir E. Coey Bigger is medical member of the Local Government Board in Ireland, chairman of the Irish Public Health Council and Central Midwives Board, and Crown representative on the General Medical Council. Sir Charles Ryall is a member of the Council of the Royal College of Surgeons of England, and Sir Frederick Hewett is a medical member of the household of the King and of Queen Alexandra. The knighthood to Sir P. J. Michelli recognizes important services rendered to medicine in the department of tropical diseases. He has been secretary of the Seamen's Hospital since 1887 and of the London School of Tropical Medicine since its foundation in 1899. He has recently had a large share in carrying through the establishment of the School with its special hospital in the buildings at Endsleigh Gardens. A full list of the medical honours is printed at p. 61.

MEDICAL DRAINAGE OF THE BILIARY TRACT.

BY a happy combination of ideas derived from S. J. Meltzer's physiological observations on the one hand, with the use of Einhorn's duodenal tube on the other hand, Dr. B. B. Vincent Lyon of Philadelphia has during the last three years worked out a method of draining the bile ducts and gall bladder which has already given excellent results in the diagnosis, prevention, and treatment of biliary disease, and gives promise of far-reaching importance. In 1917 Meltzer formulated his conception of contrary innervation as applied to the filling and emptying of the gall bladder; Oddi's sphincter at the lower end of the common bile duct and the musculature of the gall bladder are supplied with inhibitory and motor fibres from the splanchnic and vagus nerves, which act antagonistically to each other, so that when the sphincter is relaxed the gall bladder contracts and vice versa. He also showed that the application of a solution of magnesium sulphate to the mucous membrane of the duodenum was followed by relaxation of Oddi's sphincter, a result which was not produced when the salt was taken by the mouth. His hint that this observation should be utilized in human disease has been acted on by Lyon,[1] who has published a series of papers containing observations and suggestions of great importance for future developments in medical and, indeed, in surgical practice. Lyon believes that the application of magnesium sulphate to the duodenal mucosa induces contraction of the gall bladder, and that incision of the gall bladder or disease of its walls removes the normal antagonistic action of the gall bladder and Oddi's sphincter, so that bile then runs continuously into the duodenum. The technique of the introduction of the duodenal tube is too long to quote; but it may be mentioned that the patient is examined twelve hours after a meal, contamination of the duodenal contents from the mouth and stomach being obviated by frequent washings; when the tube has entered the duodenum 75 c.cm. of a 33 per cent. solution of magnesium sulphate is introduced, and the contents are then gently aspirated. In health the first bile thus obtained is of a light yellow-golden colour, and comes from the common bile duct; after a short time the bile suddenly changes to a darker golden yellow, becomes more viscid and larger in quantity; this bile is regarded as coming from the gall bladder; later bile of a lemon colour, thinner and more limpid than the other two, follows and is believed to be that freshly secreted by the liver. The normal gall bladder contains 1½ oz. to 2½ oz. of bile, but in stasis or atony of the gall bladder as much as six ounces may be obtained, provided, of course, that the cystic duct is patent. These characters of the bile change as the result of biliary infections, and comparison of the three samples, which can be separated into different bottles, will indicate what part—the gall bladder or common bile duct—is infected or mainly involved. Chemical, microscopical, and bacteriological examination of the bile can thus provide an early diagnosis; and, as Dr. G. E. Brown[2] points out in a recent article on "The Meltzer-Lyon method in the diagnosis of infections of the biliary tract," early cholecystitis can be detected at a stage when the clinical manifestations—indigestion and minor colic—are vague, and the gall bladder does not show any thickening or colour changes to the naked eye, so that bacteriological examination of the aspirated bile provides the surgeon with data he might fail to obtain from an exploratory laparotomy. When more than two and a half ounces of gall-bladder bile is obtained by aspiration, the diagnosis of stasis is justified, and by means of repeated aspirations this condition, which is of such importance in favouring infection and cholelithiasis, can be obviated. In cholelithiasis the bile may convey a gritty feeling to the finger, and microscopically show clustered masses of precipitated bile salts or pigment; on one occasion small concretions were aspirated through the tube, and several times calculi too large to be recovered by the tube were passed by the bowel after aspiration. Treatment of simple catarrhal jaundice by repeated aspiration of bile and subsequent disinfection with permanganate or silver nitrate solution diminished the duration of the disease by half, and probably minimized the risk of sequels. This method is not only of use in the treatment of early inflammations of the gall bladder and bile ducts, but may be valuable in infections persisting or recurring after operation. Further, there is a wide scope for investigation on the lines opened up by this method, on the action of cholagogues, on the early stages of bilary stasis, on the so-called functional disorders of the liver, and on the changes of the pancreatic juice.

[1] B. B. Vincent Lyon, *Amer. Journ. Med. Sci.*, Philadelphia, 1920, clix, 503; clx, 515. *New York Med. Journ.*, 1920, cxii, 23, 56.

[2] G. E. Brown: *Journ. Amer. Med. Assoc.*, Chicago, 1920, lxxv, 1414.

A SIXTEENTH-CENTURY SCHEME FOR A LONDON UNIVERSITY.

ALTHOUGH Sir Humphrey Gilbert (1539–1583), the half-brother of Sir Walter Raleigh, is best remembered as a navigator, the *Dictionary of National Biography* points out that the scheme that he laid before Queen Elizabeth, about the year 1572, for "the erection of an Achademy in London for educacion of her Maiestes wards, and others the youth of nobility and gentlemen" adds more to his literary fame than anything he ever undertook either as a soldier or a colonist. This curious anticipation of modern efforts to obtain a teaching as well as an examining University in London has attracted the attention of Mr. L. M. Griffiths, who reproduces parts of Gilbert's MS. (British Museum, Lansdowne MS. 98) in a short but scholarly note.[3] Although educated at Eton and Oxford, Gilbert spoke disparagingly of Oxford and Cambridge, considering that the students "are drawen into licentiousness and idlenes; and, therefore, yt were every way better that they were in any other place than theare." His plan was intended to find a remedy for their deficiencies, and it is interesting to glance at the provisions for medical education: "There shall be

[3] L. M. Griffiths, *Bristol Med.-Chir. Journ.*, 1920, xxxvii, 1–7.

entertained one Doctor of phisick, who shall one day reade phisick and another daie Chirurgerie, in the Englishe toung, touching all Kinds of Vlcers, Sores, Phistiloes, Woundes, Etc. Together with all kindes of medicines for the same, as well Chimice (chemical) as otherwise." . . . "The Phisition shall practize to reade Chirurgerie, because thorough wante of learning therein, we haue verie few good Chirurgeons, yf any at all, by reason that Chirurgerie is not now to be learned in any other place than in a Barbors shoppe." Research was specially indicated in the following words, which somewhat resemble those of Harvey's exhortation of 1656, that "this phisition shall continually practize togeather with the naturall philosopher, by the fire and otherwise, to search and try owt the secreates of nature as many waies as they possiblie can." The keeper of the library has his duties defined, and the Copyright Act is anticipated in the proviso that "all Printers in England shall for ever be charged to deliuer into the Liberary of the Achademy, at their owne charges, one copy, well bownde, of euery booke, proclamacion, or pamflette that they shall printe."

THE INSURANCE RECORD CARDS.

THE new medical record cards for insured persons came into use on January 1st; they are intended to contain a complete record of all the illnesses for which the individual is treated during his or her life. The system, which has been devised as an improvement upon that in use before the war, has been severely criticized by those newspapers which appear to be engaged in a campaign against the Ministry of Health. Granted the condition—namely, a medical service as part of a compulsory insurance scheme to which the State contributes—we do not think the charge is well founded. Under any State system there cannot be the absolute secrecy which exists in private practice, but the Interdepartmental Committee, over which Sir Humphry Rolleston presided, recommended precautions which, if observed, ought to prevent leakage. The card, with its medical notes, remains in the custody of the doctor until the insured person leaves the neighbourhood or for some other reason changes his doctor; in that case it is the doctor's duty to close the "window" envelope, as described in the SUPPLEMENT this week, and send it in another closed envelope by post to the clerk of the Insurance Committee of the district. We do not find that it is anywhere specifically stated that the doctor should close the "window" envelope before parting with it, but no doubt this is the intention. In the event of an insured person's death his doctor will forward his record card to the Insurance Committee; by it the card will be transmitted to the Insurance Department of the Ministry of Health; there it will be dealt with at once unopened in a clearing house; subsequently it may be opened and used for statistical purposes under the direction of the medical staff of the Insurance Department. The system has been fully explained in a memorandum addressed by the Ministry to doctors engaged in insurance practice; but others may find the article published in the SUPPLEMENT useful in recalling the circumstances. It is also objected that there is a breach of professional confidence because the Ministry, through its medical officers or persons they may appoint, has the right to inspect the records in the hands of the doctor. Here again we have a consequence of the interference of the State in matters so intimate as personal health; the risk was pointed out during the discussion of the first Insurance Bill, but Parliament, with, so far as can be judged, the full approval of the persons who were to become insured persons, decided that the benefits of the insurance scheme would more than compensate for any disadvantages that attend State interference. The risk that some confidential clerk employed by the medical officers of the Ministry should come across the record of a private acquaintance exists, but it is small and ought to be sufficiently safeguarded by the obligation of discretion and secrecy which the Ministry will no doubt impose on persons so employed. The frequency with which inspections of records are made does not, of course, affect the principle, but it may be doubted whether it would often be profitable to resort to this method. The data to be so obtained would not, as a rule, be of a nature to yield more than the simplest statistical results. The experience of the census is sufficient to prove this, and to prove also that a large statistical staff under expert direction would be necessary to achieve even so much. In saying this we are aware that the Insurance Acts Committee desired that the prime purpose of the records should be clinical and not statistical or administrative, but it is difficult to conceive any application of the data which would not involve the statistical method. The Conference of Local Medical and Panel Committees has agreed that the new form of record shall be given a trial, and no doubt much will be learnt both as to the merits and defects of the method during this year.

ALKALOIDS AND GLUCOSIDES.

M. EM. BOURQUELOT, professor of pharmacy in the School of Pharmacy of the University of Paris, has recently communicated to the Académie de Médecine a paper[1] describing a number of glucosides which he has recently prepared. Incidentally he deals with the history of the discovery of alkaloids and glucosides. The first alkaloid to be isolated was morphine, and its discovery is generally attributed to a Hanoverian pharmacist, Sertürner, whose report on its isolation was published in 1806. He showed for the first time that it behaved like an alkali, forming salts with acids, but Bourquelot points out that the same body had been identified some years earlier by Dérosne, a Paris pharmacist. Dérosne published his results in the *Annales de Chemie* of the 30th ventose of the year XI (March 20th, 1803). By precipitating a solution of opium with potassium carbonate he obtained a crystalline body which he called a salt, although he recognized that it was not really of that nature. Dérosne's method of obtaining what he called the "essential salt" of opium was in principle the same as is used for producing the alkaloids, which are now known to the number, it is said, of 250. Pelletier isolated emetine from the ipecacuanha root in 1817, strychnine was obtained in 1818, and brucine in 1819, quinine and cinchonine in the following year, and codeine in 1831. The search, however, soon showed that alkaloids were not the only active principles that occur in plants. In 1820 a French pharmacist—Leroux—obtained salicin from willow bark; he supposed it to be an alkaloid, but Gay-Lussac showed that this was an error, as the body was neutral and did not form salts with acids. Certain other bodies of a similar nature were identified, and as, when decomposed, they were found to yield glucose they were called glucosides. Certain glucosides are hydrolized by emulsin, and M. Bourquelot has made use of the method founded on this observation. When he began the inquiry in 1901 only ten glucosides were known. He has added many, eleven of them from plants which are used, or have been used, as domestic remedies. Such a familiar shrub as the elder (*Sambucus nigra*) yields the glucoside sambunigrin, the cherry laurel (*Prunus laurocerasus*) prulaurasin, the leaves of the yew (*Taxus baccata*) taxicatin, and so on for veroain, hepatica, scabious, and several others. He has found glucosides also in a number of plants not used in medicine. Altogether 208 species of plants were examined, and evidence of a glucoside found in 149, although in only 56 was it isolated.

CERVICAL DEFECTS.

A RECENT number of the Italian journal which is devoted to the surgery of the locomotive organs[2] was entirely given up to an article of 104 pages on congenital

[1] *Bull. de l'Acad. de Méd.*, November 30th, 1920.

[2] *La Chirurgia degli Organi di Movimento.* Direttore, Dott. V. Putti. Vol. iv, Fasc. 4, with 84 figures in the text. Bologna: L. Capelli. October, 1920.

anomalies of the cervical vertebrae by Dr. Mario Bertolotti, who is in charge of the radiological departments of the University of Turin and of the Ospedale Maggiore. This monograph is based upon 18 cases, of all but one of which radiographs are included. Most of the patients were brachicephalic, and in a number torticollis was present. One of them presented the usual features of a congenital muscular torticollis, such as shortening and sclerosis of the sterno-cleido-mastoid muscle and facial asymmetry, but a radiograph revealed the interesting fact that there was ossification of some of the deep muscles of the neck on the same side as the contracture. One case of cervical defect had also a typical spina bifida occulta in the loin. Several cases are described as "pseudo-Pott," the diagnosis of which might have been difficult but for the *x* rays, especially when scoliosis also was observed. The radiographs are very good and clear. The author has found that the best radiographic results are got by placing the patient prone, with the head in forced rotation to one side, and the source of the rays in a position corresponding to the tip of the fifth cervical vertebra. Two views are taken, one in a right anterior oblique, and the other in a left anterior oblique plane. The bibliographical supplement to this periodical is a useful publication.

SMOKE ABATEMENT AND THE EQUIPMENT OF DWELLINGS.

THE Departmental Committee on Smoke and Noxious Vapours Abatement, which was appointed in 1914, and resumed its work in the early part of 1920, formed the conclusion that, even in industrial areas, at least 50 per cent. of the pollution of the atmosphere by smoke—with the attendant evil effect on human health, as well as on vegetation and agriculture, on live stock and milk—is due to domestic chimneys. In view of the many State-aided housing schemes lately begun or projected, the Committee issued on June 1st an interim report on the methods that might be employed to minimize the production of smoke in new houses, where "a unique opportunity for constructive reform" exists. An account was given in our issue of August 7th, 1920 (p. 220), of the investigations and conclusions set out in this report. The Ministry of Health, which had previously drawn the attention of housing commissioners to the report, has now issued a general housing memorandum (No. 40), in which are indicated in general outline the best methods for putting the Departmental Committee's recommendations into practice. For the ordinary coal-burning cooking range, of which the comparative inefficiency and the wastefulness, both in fuel and labour, are recognized by many householders as well as by the experts who gave evidence before the Commission, the substitution of a gas-cooker is advocated; where gas is not available the alternative of electric cooking or ranges which burn coke or anthracite should be considered. It must be remembered that anthracite heating requires special stoves and special arrangements for ventilation; ranges designed to burn this fuel, however, are already on the market. For hot water supply the memorandum recommends the provision of means other than the boiler at the back of the open coal fire; thus the installation of a small coke-fire boiler placed in the scullery is described as satisfactory, cheap, and efficient, and it has the additional advantage of enabling a certain amount of auxiliary heating to be obtained from radiators supplied by the same boiler. For warming the living-rooms or bedrooms the provision of coke-burning grates, of gas fires, or of hot-water radiators is enjoined. Local circumstances of course differ very much, particularly as between urban and rural areas; nevertheless, so much importance is attached to the recommendations of the Departmental Committee, that in accordance therewith local authorities are asked to consider the practicability of modifying the projected heating and cooking arrangements of dwellings which have not yet been completed. As was pointed out by the Committee, abolition of the open coal grate will diminish expenditure in that brick fireplaces, large flues, and chimney stacks will not be required; this should be found to counterbalance the cost of the smoke-preventive equipment, and in some instances it is anticipated that adoption of modern heating equipment will lead to an actual saving. The Housing Commissioner is prepared to confer with local authorities on the question of a central installation for the hot-water supply and heating of a number of houses. Against the extra cost of such a system should be set a considerably lessened cost of construction.

MEDICINAL HERBS.

THE famous *tisanes* which constitute the basis of domestic therapeutics in France are virtually unknown on this side of the Channel, and only a few old-fashioned housewives are familiar with the demulcent properties of marsh mallow, the sedative effects of verbena, the expectorant qualities of eucalyptus leaves, the diuretic properties of couch-grass (especially when associated with nitre), and the alleged depurative action of sarsaparilla. By far the greater part of the medicinal herbs utilized in this country are imported, in spite of the fact that many of them might very well be cultivated at home. It is even more surprising to learn that in France, where *tisanes* are so popular, huge quantities of herbs are imported, to the detriment of the national exchequer. It may not be without interest to look down the list of these importations. Arnica figures for four tons and costs £20 a hundredweight for the flowers, £7 for the root; buckthorn (*Rhamnus frangula*), a favourite laxative for children, 21 tons at £6 the cwt.; mullein, a popular demulcent, 4 tons at £24 the cwt. Camomile flowers, stomachic and antispasmodic, are in great request, since, in addition to being largely cultivated in France, 41 tons are imported at £24 a cwt. Far and away above the other herbs in point of popularity is couch-grass, of which as much as 127 tons enters France every year at £7 a cwt. Eleven tons of male fern were imported at £26 a cwt., and nearly the same weight of ash-tree leaves for purgative purposes. Seventeen tons of gentian and 70 tons of marsh mallow seem reasonable, but it is difficult to imagine that it should be necessary to import nearly 5 tons of the ordinary common nettle and 94 tons of cherry stalks, the latter being reputed highly diuretic. Fifty-eight tons of coltsfoot (*Tussilago*), another demulcent, and 42 tons of violet petals, the last named at £36 a cwt.! We have not exhausted the list by any means, but we have said enough to establish the importance of this branch of commerce, especially when it is borne in mind that no mention is made of such drugs as digitalis and hyoscyamus and the like.

THE Registrar of the General Medical Council informs us that by an Order in Council dated December 21st, 1920, since the Kingdom of Belgium no longer affords to the medical practitioners of the United Kingdom such privileges of practising in Belgium as were offered during the late war, His Majesty has ordered that the Order in Council of January 7th, 1915, be revoked without prejudice to the right of any persons whose names have already been registered. Persons possessing Belgian qualifications are therefore no longer entitled to registration in the *Medical Register* of the United Kingdom.

SIX Hunterian lectures on the Principles of Human Craniology, illustrated by specimens and preparations, will be delivered by Professor Arthur Keith in the theatre of the Royal College of Surgeons of England in Lincoln's Inn Fields at 5 o'clock on January 17th, 19th, 21st, 24th, 26th, and 28th.

NEW YEAR HONOURS.

THE New Year Honours announced on January 1st include awards to the following members of the medical profession:

Knighthood.

DAWSON WILLIAMS, C.B.E., M.D., D.Sc., F.R.C.P., Editor of the *British Medical Journal.*

S. SQUIRE SPRIGGE, M.A., M.D., Editor of the *Lancet.*

CHARLES RYALL, C.B.E., F.R.C.S., Senior Surgeon to the Cancer Hospital and to the Bolingbroke Hospital.

WILLIAM HODGSON, L.R.C.P.I., L.R.F.P.S.Glasg. For public services in Crewe.

EDWARD COEY BIGGER, M.D., M.Ch., Chairman of the Irish Public Health Council and Medical Member of Local Government Board, Ireland.

ALEXANDER JARVIE HOOD, M.B., C.M., Senior Honorary Physician, Prince of Wales's (Military) Hospital, Randwick, New South Wales.

K.C.B. (Military Division).

MAJOR-GENERAL ROBERT PORTER, C.B., C.M.G., M.B., Army Medical Service (ret. pay).

K.C.V.O.

FREDERICK STANLEY HEWETT, M.V.O., M.D., Surgeon-Apothecary to the King and His Majesty's Household; and to Queen Alexandra and Her Majesty's Household.

C.V.O.

WILLIAM FAIRBANK, M.V.O., O.B.E., Surgeon in Ordinary to His Majesty's Household, Windsor Castle.

C.M.G.

EDWARD CHARLES LONG, Principal Medical Officer, Basutoland.

THOMAS EDMUND RICE, Director of the Medical and Sanitary Services, Nigeria, formerly P.M.O. Sierra Leone and the Gold Coast.

C.I.E.

LIEUT.-COLONEL DAVID MACDONALD DAVIDSON, I.M.S., Civil Surgeon, Lahore, Punjab.

LIEUT.-COLONEL FREDERICK O'KINEALY, I.M.S., Surgeon Superintendent, Presidency General Hospital, Calcutta, Bengal.

LIEUT.-COLONEL WILLIAM FREDERICK HARVEY, I.M.S., Director, Central Research Institute, Kasauli, Punjab.

LIEUT.-COLONEL JOHN LAWRENCE VAN GEYZEL, late I.M.S., Examiner of Medical Stores, India Store Dépôt.

Kaisar-i-Hind Medal.

A Kaisar-i-Hind Medal, for public services in India of the first class, has been awarded to Miss Annette Matilda Benson, M.D., B.Sc., formerly senior physician, Cama and Albless Hospitals, Bombay.

Surgeon Commander Christopher L. W. Bunton, R.N., has been promoted to the rank of Surgeon Captain.

A *Knighthood* has been conferred on Mr. P. J. Michelli, C.M.G., Secretary to the London School of Tropical Medicine, and the *C.I.E.* on Dr. Edwin John Butler, Imperial Mycologist, Pusa.

THE Lettsomian Lectures before the Medical Society of London will be delivered at 9 p.m. on February 7th, February 21st, and March 7th, by Mr. G. E. Gask; their subject this year is "Surgery of the lung and pleura." On Monday next, January 10th, there will be a pathological meeting; on January 24th papers will be read by Dr. Anthony Feiling and Dr. F. J. Crookshank. On February 14th a discussion on skin disease and its relation to internal disorder will be introduced by Sir James Galloway. On February 28th Dr. J. H. Ryffel will open a discussion on "The chemical estimation of gastric function," and on March 14th Sir Henry Gauvain will open a discussion on the "Non-operative treatment of surgical tuberculosis." The annual dinner is fixed for March 8th at the Wharncliffe Rooms, Hotel Great Central. The second general meeting of the session will be held at 8 p.m. on May 23rd; at 9 o'clock the annual oration will be delivered by Lord Dawson of Penn, and this will be followed by a conversazione.

Medical Notes in Parliament.

Vaccination.

IN reply to Mr. Swan, who asked whether there was anything in the Vaccination Acts or Orders issued thereunder to prevent the performance of the operation of vaccination by registered medical practitioners, other than public vaccinators, with humanized lymph, and the performance of the operation by unregistered persons, Dr. Addison said that the answer was in the negative, but the Acts provided that the certificate of successful vaccination could only be given by a registered medical practitioner. In answer to a question by Mr. Tyas Wilson as to the supply of vaccine, Dr. Addison said that in addition to the Government lymph establishment, which manufactured vaccine lymph for the supply only to public vaccinators and medical officers of health, there were four private firms in England and Wales which manufactured lymph for sale. He had no jurisdiction over the private manufacture of vaccine lymph, but as regards the Government lymph establishment, all possible precautions were adopted to secure that the lymph was produced under the best conditions and was free from contamination.

In reply to Mr. Kenyon, on December 21st, Dr. Addison gave the following statement as to public vaccinations carried out in England and Wales during the past ten years and the expenditure involved:

Year.	No. of Successful Vaccinations and Revaccinations Performed by Public Vaccinators at the Cost of the Rates.	Approximate Expenditure incurred in respect of Public Vaccination.	
		Expenditure out of Local Rates.	Expenditure out of Exchequer Funds.
		£	£
1909–1910 ...	415,718	183,000	25,000
1910–1911 ...	394,338	174,000	30,000
1911–1912 ...	362,757	165,000	23,000
1912–1913 ...	334,530	158,000	19,000
1913–1914 ...	315,067	152,000	16,000
1914–1915 ...	—	144,000	26,000
1915–1916 ...	—	138,000	12,000
1916–1917 ...	—	129,000	16,000
1917–1918 ...	232,648	116,000	21,000
1918–1919 ...	202,913	110,000	20,000

Ex-Service Men in Asylums.—In answer to Mr. Lyle, on December 21st, 1920, Mr. Macpherson said that ex-service men confined in asylums and suffering from certifiable insanity due to war service were by special arrangements treated as Service patients with all the privileges of private patients. Their number on December 9th, 1920, was 5,634. The entire cost of their maintenance and treatment was borne by the Pensions Department, and treatment allowances were made on substantially the same basis as in other cases of in-patient treatment.

Lunacy Certificates.—Mr. F. Roberts asked, on December 23rd, 1920, what became of the original reception order and accompanying medical certificate of inmates of asylums who were dead or who had been discharged; and whether, as some issue might turn upon the integrity and security of the original document, he would take steps to secure that the originals should remain henceforth in the custody of the Lunacy Board, and be free from the interference with their contents. Dr. Addison replied that the original admission-papers relating to dead or discharged patients were retained by the authorities of institutions for as long as, in their discretion, they thought necessary.

Divisional and Full-time Health Insurance Officers.—Sir A. Holbrook, on December 23rd, asked the salaries to be paid to the four divisional medical officers and the thirty-three whole-time outdoor medical officers recently appointed by the Minister of Health, and what he estimated would be their travelling expenses; what expenditure would be incurred for the clerical and nursing staffs to these officers; what payment had been sanctioned for rent and care of regional offices throughout the country; whether the Minister was aware that the appointment of these officers to supervise and direct panel doctors throughout the country was strongly resented by the medical profession; and whether in view of the expense he would reconsider his decision. Dr. Addison replied that the salary to be paid to the four divisional medical officers was at the rate of £1,600 a year, and for the thirty-three whole-time medical officers the salaries ranged from £1,000 to £1,400 a year, in all cases inclusive, and providing that no additional payment was to be paid in the shape of war bonus. The total travelling expenses of this staff for a full year was estimated at £8,000. In addition a clerk had been assigned in certain areas, and the cost of clerical assistance under this head was estimated at £2,700 a year. Where necessary nurses were employed to assist these medical officers at a fee of half a guinea a session. Where it had been necessary to rent premises for this work the arrangements had been made by the Office of Works. He was certainly not aware that the policy adopted was strongly resented by the medical profession. This policy, which was approved by Parliament in 1914, had been continuously supported by medical men and by the approved societies; it was sound in itself and would produce results abundantly justifying the expenditure, in the saving of health, and of the amounts paid in sickness benefit.

Scotland.

MR. D. M. GREIG OF DUNDEE.

MR. D. M. GREIG, F.R.C.S.Ed., who had been thirty years in Dundee, and was senior honorary surgeon to the Royal Infirmary, has just taken up duty as Conservator of the Museum of the Royal College of Surgeons in Edinburgh. At the close of the year a pleasant function was organized by the Presidents of the Forfarshire Medical Association and the Dundee Branch of the British Medical Association, when Professor Stalker, as spokesman of his colleagues, presented Mr. Greig with a cheque subscribed in token of their appreciation of his services to the profession, and of congratulation on his appointment to a post so congenial. On December 31st the Freedom of the City was conferred on Mr. Greig in recognition of his distinguished service to the public. This is the highest honour which the municipality can give to any one who is not of its own body, and though in modern times it has usually been confined to Premiers or others achieving eminence in a similar way, those who have known the qualities and range of Mr. Greig's work best appreciate the appropriateness of the distinction. In acknowledging the honour Mr. Greig spoke of the enormous increase in the number of operations now undertaken by surgeons. When he was a student, he said, there were in the Dundee Infirmary from eighty to ninety operations a year, whereas in a recent year he had himself done over 2,000 operations. The conferring of the freedom was made the occasion of a further tribute: valuable gifts were presented to Mr. Greig, his wife, and daughter. Mr. Greig's museum, known to some who had the opportunity of seeing it as a whole and by the specimens he produced from it to illustrate his teaching, is almost unique among modern private museums. It expresses, among other fine elements, an interest in craniology, persistent and active, from the time, more than thirty years ago, when Mr. Greig was first to recognize congenital parietal perforation in the living, till to day, when it numbers some three hundred skulls individually documented. The new post will give Mr. Greig scope for his skill as a conservator, and also time—which practice denied—for literary treatment of the valuable material known to be available in Mr. Greig's case records.

WAR LESSONS IN CIVIL LIFE.

On December 15th, 1920, Sir Henry Gray of Aberdeen addressed a large meeting of the Dundee Branch of the British Medical Association on the lessons of the war and their application to civil life. The address will be published shortly in full; it was highly appreciated, and several members joined in paying a tribute of thanks to Sir Henry Gray. The meeting was followed by a dinner, under the genial chairmanship of Dr. J. S. Y. Rogers, President of the Branch.

EDINBURGH ROYAL INFIRMARY.

The report of the managers of the Royal Infirmary of Edinburgh for the twelve months ended October 1st, 1920, shows that the total number of in-patients increased from 12,550 to 13,320. The average length of treatment was 24.05 days. In addition to the cases treated in the wards, 48,117 out-patients, most of whom attended several times, received medical and surgical aid and such dressings and surgical appliances as were necessary. During the period under review there was an average waiting list of 889 persons. While the ordinary income improved, the increase was by no means in ratio to the greatly increased cost of running the hospital, while heavy arrears of work in the way of painting and so forth had accumulated during the war. The ordinary funds being quite inadequate to meet the expenditure, the managers launched a special appeal; as a result the subscriptions for the year increased by nearly £46,500 over those in 1919, and a sum of more than £60,000 was collected for the improvements and extension fund. The ordinary income during the year was £127,127. The voluntary contributions directly attributable to the organized efforts of employees now amount to some £30,000 a year. This is nearly four times the yield from that source in the year before the war. The ordinary expenditure has exceeded all previous records; it was £130,668, or more than £28,000 greater than in 1919. The cost per occupied bed increased from £115 odd to £149 odd.

Ireland.

IRISH PUBLIC HEALTH.

SIR EDWARD COEY BIGGER, M.D., Chairman of the Irish Public Health Council and medical member of the Local Government Board, has been the recipient of many congratulations from members of the medical profession and of the public service in Ireland upon the knighthood conferred upon him. He has been actively identified with the public health work in Ireland since he commenced his career as a medical practitioner in 1883 in Belfast, where his family are well known. In 1900 he was appointed Medical Inspector of the Irish Local Government Board, and was a member of the Commission on Poor Law Reform. On the retirement of Sir Thomas Stafford, he was appointed Medical Commissioner of the Local Government Board. In June, 1919, he was made Chairman of the Irish Public Health Council, which was formed in connexion with the Ministry of Health Act, 1919. Sir Edward, in a recent interview with a representative of the *Freeman's Journal*, stated that the Irish Public Health Council had recently formulated a scheme which, if adopted, would have a far-reaching effect, both in the interests of efficiency and economy in the health, hospital, medical, and veterinary services in Ireland. The scheme, however, was still before the Government, and had not been put into operation. The Council was asked to formulate proposals with a view to the submission to Parliament of an Irish Public Health Bill, which would place the public health services in Ireland on a wider and more comprehensive basis, and, where necessary, make mandatory on the local health authorities various adoptive and permissive health enactments. The Council published its report (which was practically unanimous) last May. This report was subsequently approved by a meeting of delegates fully representative of the Irish medical profession. It was also approved by the Royal College of Physicians in Ireland and other important medical bodies. The present system of medical attendance upon the sick poor, established under the Medical Charities Act of 1851, ensured that no poor persons need be without free medical attendance and the necessary medicine when they were sick. That system of medical relief fulfilled a very useful purpose, but to meet more modern conditions it required to be wholly reorganized. It should, in his opinion, be completely separated from the Poor Law administration and remodelled with a view to removing any possibilities of abuse. The local area of control should be extended from the union to the county, and the system linked up with a general county public health, medical, and hospital scheme. Sir Edward said that the Irish Public Health Council had recommended that a system of medical treatment should be provided as part of a general hospital system under the control of county health boards: (1) for insured persons on a contributory basis; and (2) for those who are admittedly unable to contribute. Drastic reforms were recommended for improving the conditions under which members of the medical profession would be called upon to carry out the treatment of the classes referred to. The hospitals in Ireland were under the control of various bodies, none of them public health authorities; they should be under the control of the sanitary authority, whose duty it is to prevent the spread of infection. The lunatic asylums were administered by separate committees. Co-ordination was not only required in hospital administration, but there was a great necessity for a simplification and a unification of the mode of administration of local and special hospitals. One of the most important and essential conditions of the public health services, Sir Edward Coey Bigger urged, was the appointment of county medical officers of health, and the transference of all health administration to the county health authority.

THE HENRY MOORE MEMORIAL.

Friends of the late Lieut.-Colonel Henry Moore, who died of wounds while on service in France, resolved that the memorial they wished to raise to his memory would best be established in connexion with the City of Dublin Hospital, to which he was surgeon for twenty-two years. At a gathering of the subscribers at the hospital the

memorial was formally presented and accepted by Dr. G. Jameson Johnston, the senior surgeon. It consisted of a brass tablet and a sum of £700 for a male bed and a child's cot. The tablet, which has been erected in the entrance hall, bears the following inscription:

In memory of Lieut.-Colonel Henry Moore, D.S.O., M.C., Surgeon to the Royal City of Dublin Hospital, 1896–1918. This Tablet, together with Memorial Beds, has been instituted by a number of those who desire to preserve his name as a zealous worker in the interests of the Hospital, and a man truly devoted to his profession. Kindly to all, and a friend of many, he served in the Great War from Mons until his death, at Wimereux, from wounds received in the discharge of his duty, on the 29th May, 1918.

County Court Judge Pigot, who made the presentation, recalled that Lieut.-Colonel Moore had served during the South African campaign as well as for four years during the Great War.

England and Wales.

THE L.C.C. AND THE TRAINING OF PUPIL MIDWIVES.

THE Ministry of Health, in a recent communication to the Central Midwives Board, offered to arrange for the women medical officers and nurse inspectors on the staff of the Ministry to inspect and advise the Board upon midwives or institutions desirous of obtaining the Board's sanction to undertake the training of pupil midwives. This is a service which has been undertaken under the Midwives Acts by the officers of the London County Council who are qualified women medical practitioners in conjunction with their ordinary duties, and as the Ministry's offer indicated the possibility of overlapping, the London County Council communicated with the Ministry. The reply, read at the meeting of the Council on December 14th, repeated that the offer had been made, but that it rested with the Central Midwives Board to decide in each case whether it would ask for a report from the officer of the local supervising authority or from an officer of the Ministry. The Ministry's reply was regarded as unsatisfactory by the Midwives Acts Committee of the Council, who stated that there was no reason to suppose that the Board was dissatisfied with the assistance rendered by the Council's inspectors in the matter, and the Council recorded its opinion that the action of the Ministry was unnecessary, would lead to confusion, and would involve a wasteful employment of staff. The Minister is to be asked to receive a deputation on the subject.

BRISTOL MEDICAL SCHOOL.

The guest of the evening at the annual dinner of the Medical School of the University of Bristol, held under the presidency of Dr. George Parker, was Sir Robert Jones, K.B.E. Dr. C. Ferrier Walters, surgeon to the Bristol Royal Infirmary, in proposing his health, said that Sir Robert's mission in life had been the improvement, correction, and cure of those ills, diseases, and deformities which man had reaped by his neglect of nature, by his ignorance, his carelessness, or his misfortune. His had been the leading part in the organization of the magnificent orthopaedic hospitals, through which thousands of wounded men had returned to civil life. Thus, after long years, he had come into his own. Mr. Walters also referred to Sir Robert's goodness to the younger men and his extraordinary interest in their work. Sir Robert Jones, in reply, recounted some of his early experiences in endeavouring to induce the War Office to form an orthopaedic department in the army. He concluded by proposing the toast of "The Medical School and University." In Sir Isambard Owen, who had done so much to build up its reputation, the university had, he said, a medical and scientific vice-chancellor who had rendered it great services. Professor Fawcett, dean of the school, in response, compared the magnificent quarters now occupied by the school with the buildings when he first joined it twenty-seven years ago. Bristol had become the envy of other universities. This was due largely to the generosity of the Wills family; but more had to be done, for all lecturers ought to be paid, and there should be endowed scholarships for research open to young graduates. No other school could offer better facilities for clinical work than Bristol, and it might be added that it held a remarkable position as regards games, both cricket and football. Professor Tyndall, replying for the science faculty, expressed the hope that there would in future be more co-operation between medical men and chemists and physicists. Mr. Richardson Cross proposed the toast of "The Past and Present Students," which was acknowledged by Dr. D. T. Price, Miss Golding, and Mr. G. Bush.

Australia.

PROFESSORSHIP OF ANATOMY AT SYDNEY UNIVERSITY.

THE Senate of Sydney University has decided to appoint a full professor of anatomy, in succession to Professor J. T. Wilson, who now occupies the chair of anatomy at Cambridge, and also an associate professor. This division of the chair has become necessary in consequence of the large number of medical students now passing through the medical school. The position of associate professor has been filled by the appointment of a Sydney graduate, Dr. John I. Hunter, who has been a demonstrator in the Department of Anatomy for several years. He was born in Victoria in 1898, and is thus only 22 years of age. After a public school education he entered the Sydney University with a bursary in 1915. He had a brilliant career, and graduated M.B., Ch.M. last March. He has proved his ability as a teacher and demonstrator, and has given proof of ability in original research. Few who know Dr. Hunter are surprised at his appointment, for great things have always been expected of him.

THE INFLUENZA EPIDEMIC IN WESTERN AUSTRALIA.

The influenza epidemic in 1919 caused the death rate in Western Australia to rise from 9.1 to 11.1. In his report for the two years ending December 31st, 1919, Dr. R. C. Everitt Atkinson, commissioner of public health and principal medical officer, describes how the State authorities, warned by the devastating outbreak in New Zealand, were able to formulate measures of quarantine, isolation, and inoculation for combating the spread of influenza if the epidemic should reach Western Australia. After influenza had been notified from Victoria in January, 1919, quarantine was instituted at points of communication both by land and by sea. Unfortunately the quarantine arrangements led in both instances to considerable friction with the Commonwealth authorities; the trouble seems to have been due, on the one hand, to the commandeering of railway travelling stock as quarantine stations and on the other, to disagreement as to the period of quarantine necessary for sea travellers. It is believed that by the institution of quarantine the introduction of infection was delayed and its virulence diminished; in the early days of June, however, an outbreak of fifty-seven cases occurred at Gwalia, and spread in spite of a locally instituted quarantine, to other districts. Perth was infected on June 6th, and the last area to be reached was Broome (November 25th). Clinically the infection resembled that occurring annually in the state, save for the greater subsequent prostration and the frequency of serious lung complications. Haemorrhages from the nose, pharynx, bowel, bladder, and uterus were common; abortion was frequent in pregnant women, of whom many died. Syphilitics did extremely badly; the same was observed of chronic alcoholics, but moderate drinkers, it is stated, seemed to have some immunity. In males the greatest number of deaths occurred between the ages of 30 and 35, and in females between 25 and 30; twice as many males died from influenza as females. Nearly 100,000 inoculations were given at public dépôts and at public expense; although no properly controlled evidence is available as to the value of this measure, the majority of practitioners thought it afforded a considerable degree of protection against the more serious complications.

MESSRS. JOHN BALE, SONS, AND DANIELSSON, LTD., inform us that they have recently published English editions of Drs. Cruchet and Moulinier's book on Air Sickness, and of Drs. Maublanc and Ratié's book on Medical Examination of Airmen, reviewed in our last issue at p. 18.

Correspondence.

THE STUDY OF HEART DISEASE.

SIR,—In his valuable lecture on "The Study of Heart Disease" (BRITISH MEDICAL JOURNAL, December 11th, 1920) Dr. Poynton regrets that the possibilities of methods of prevention "have not been fully explored"; and he asks, in relation to the responsibilities of rheumatism as a cause of cardiac lesions, "Is the general public sufficiently alive to the danger of this disease?" Practitioners who have had much experience in children's hospitals will, I imagine, agree with the negative implied in this question. The public is not alive to the danger, and this largely because to the public rheumatism means pain, and particularly pain in the joints. If this ignorance is to be dispelled the end can only be attained by the action of the medical profession. On several occasions during the last twenty years I have urged that the discovery of rheumatism in any of its manifestations in any member of a family ought to be the occasion for warning parents that any slight illness in one or other of their children probably carries the risk of heart disease, and that the only chance of protection is early and complete rest in bed. Not until this warning is a universal policy can it be said that the medical profession has taken all possible steps for the prevention of heart disease in early life.

Dr. Poynton recognizes that heart disease "as we see it in our hospitals is infrequent in the well-to-do," and suggests that this experience prompts "careful systematic inquiry into housing and clothing and school influences." Is it not probable that, without minimizing the agencies he proposes, an explanation of the contrast may be that in the richer classes of the community even apparently slight and trivial symptoms secure prompt rest in bed, while among the poorer classes this precaution is neglected or postponed? It will continue to be neglected or postponed until parents are systematically told that the mischief that has fallen on one of their children may be repeated in others unless rest is practised from the outset even of minor disturbances and complaints.

Everyone must admire Dr. Poynton's persevering efforts to ensure a thorough knowledge of rheumatism in early life in the medical profession, and must sympathize with his desire for "special arrangements for cases of early heart disease to have a long period of rest." But still more desirable is it to secure the rest at a date when prevention, not mere amelioration, is at least possible. This will be obtained only when, rheumatism in one or other of its forms having appeared in a family, the parents learn from their medical advisers the actual risks which their children run. Other preventive agencies may perchance in time be discovered. But for the present we know of none but early and complete rest. It is for the profession to consider whether this knowledge is in practice applied as widely as it ought to be.—I am, etc.,

London, W., Dec. 28th, 1920. C. O. HAWTHORNE.

THE MINISTRY OF HEALTH AND THE PROFESSION.

SIR,—In last week's issue of the JOURNAL Dr. Brackenbury hints rather vaguely that—

> "A section of the lay press, certain politicians, lay administrators, and political wirepullers, influenced mainly by the tactics of party warfare, are attempting to undermine the position and machinery of the Ministry of Health";

and he urges our profession to come to the rescue.

It is to be hoped that we will do no such thing. As a profession and in our Association—as Dr. Brackenbury recognizes—we have no concern with politics and its many underhand ways. No doubt the very naughty conspiracies he refers to will meet in due time with their historic punishment. What can we know of the currents and cross-currents now seemingly at work; how can we possibly, therefore, steer a correct course if we launch out into the deep?

Is it not possible that, as our profession for the first time is being drawn from its traditional retirement into closer touch with the political world, therefore becoming able to look down into the arena of political strife, many of us feel that if there is to be any fighting we would wish to be there? But it must not be. Deliberate, individual partisan action on behalf of the present Ministry of Health—as quite recently shown in the *Times* by those at the moment recognized in our profession and Association as amongst its "leaders"—only breeds distrust and suspicion in the profession and also in politicians of all schools; thereby helping to defeat ultimately the very objects which we all have in view. The lack of restraint shown is to be deplored.

It is not for our profession nor the Association officially without due consideration and approval to take up the cudgels on behalf of any Ministry. Sufficient it should be for us to express our opinion on questions affecting health in plain and unmistakable language, and then to proceed to organize ourselves and public opinion in support of the same.

Our profession has spoken out on many recent occasions, and no doubt is prepared to do so again directly an opportunity occurs. Until then let us retain our detached position, and leave the political arena and its subterranean passages to those who seemingly consider life therein to be as the breath to their nostrils.

We must not forget the sorry plight of the peacemaker who ventured to interfere in a family discussion.—I am, etc.,

Hove, Jan. 3rd. E. ROWLAND FOTHERGILL.

THE BEGINNINGS OF LIFE.

SIR,—I have read with much interest the leading article in your issue of December 25th, 1920, on "The Beginnings of Life." As a firm believer in the doctrines of my father, the late Dr. Charlton Bastian, F.R.S., I am specially interested in the new researches of Professor Benjamin Moore, F.R.S., and his co-workers on sunlight and the life of the sea.

I must demur, however, to a statement in your concluding paragraph. You say:

> "It would seem that inquiries conducted along these lines into the functions of marine and fresh-water algae are more likely to bring us towards a solution of the origin of life than investigations directed to bacteria and fungi, which can exist only upon organic matter, whereas the primordial world could contain no such matter before the advent of life."

I would like to ask what is the authority for stating that bacteria and fungi can exist "only upon organic matter," and has this been definitely proved or disproved? In this connexion I would refer your readers to a short article entitled "The Simplest Kind of Protoplasm," to be found as an appendix to Dr. Bastian's small book, *The Nature and Origin of Living Matter* (Watts and Co., R.P.A. Cheap Reprints, No. 41.).—I am, etc.,

W. BASTIAN,
Portsmouth, Dec. 27th, 1920. Surgeon Commander R.N.

SIR,—I am interested to observe that the opinions of Professor Stanley Gardiner, Professor B. Moore, and others, as reported in your leading article, "The Beginnings of Life," in the JOURNAL of December 25th, 1920, p. 982, coincide with my own, as published twenty-one years ago.

In a paper entitled "What is Life?" read before the Birmingham Natural History and Philosophical Society on February 21st, 1899, and published in the *Proceedings* of that society for the same year, I advocated the theory that the "lability" of living substance is fundamentally due to the changeability of nitrogen compounds, and that nitrogen is the central element in all those chemical reactions which we regard as peculiarly vital.

Discussing the origin of life, the paper proceeds (pp. 61–63):

> "Both our speculation and our experiments should be based on the assumption (in the absence of evidence to the contrary) that life is the same in its essence nowadays as when it first dawned on the earth; that the transition from inert to living matter is now going on by the same essential reactions as at all times, only that as the result of evolution the apparatus for the performance of these reactions has become highly specialized.
>
> "Provisionally, then, I imagine some such reactions as the following to have occurred: that solar energy, acting on the water or damp earth containing the raw materials before mentioned [ammonia, oxides of nitrogen, CO_2, and the usual

salts, such as chlorides, sulphates, and phosphates of Na, K, Ca, Mg, Fe,] caused dissociation and rearrangement of the atoms: that the nitrogen abstracted oxygen from its compounds with carbon, hydrogen, sulphur (phosphorus?), and other elements and delivered it to the atmosphere. Not much energy would be absorbed by a transparent liquid; such actions as the above would occur rather in water containing compounds of iron in solution or suspension. These compounds would absorb the solar energy, and the iron itself would assist in carrying oxygen hither or thither; and hence possibly iron was as intimately concerned in the first glimmer of life in the past as in its mightiest flame to-day.

"In this way compounds of nitrogen, carbon, etc., would accumulate in the water or damp earth; and further reactions, anabolic and catabolic, would occur among them by virtue of the lability of the nitrogen compounds. Life at this stage would be of the humblest kind; we should hardly recognize it as life nowadays. There would be no definite organisms—only diffuse substances trading in energy. Between this stage and the evolution of *cellular* organisms an immense period may have elapsed, and that period may have witnessed many intermediate stages. The development of the cell form in living beings must have marked a most important epoch in the history of life.

"It may be a debatable question whether the earliest organisms were able to utilize the energy of sunshine or whether their whole energy was derived from the N compounds produced in the atmosphere by lightning. But in any case the faculty of appropriating the energy of sunshine must have developed early, if not at the very beginning. In the functions of life anabolism precedes catabolism; and one would therefore suppose that the earliest forms of life were concerned more in accumulating than in dispersing energy, and therefore that the energy-dispersing organisms, like bacteria and fungi, may have had a comparatively late origin. . . .

"I imagine that [nitrogen-appropriating bacteria, growing on the roots of leguminous plants] cannot represent an early form of life or an early source of combined nitrogen. This assimilation of nitrogen is an anabolic process; but the energy for its performance is obtained, not from sunshine, but by combustion of carbon and hydrogen compounds which the said organisms absorb from the soil. The total result of the process is therefore a *dispersion* of the energy which other organisms had previously accumulated.

"My view of the origin of life implies that the first attempts at life are still continuing; and that if by chance all life were wiped out, another cycle would begin. Why, then, do we not find evidence of these processes in the shape of primitive vital substances in water or elsewhere? The answer is not far to seek. If any such substances begin to be formed, they are seized and assimilated by the already developed organisms. Experience teaches us that this must be so. We know that compounds of nitrogen, oxygen, carbon, hydrogen, sulphur, and phosphorus, which we make in the laboratory, are inconveniently prone to be attacked by lowly organisms."

—I am, etc.,

Cambridge, Jan. 1st. F. J. ALLEN.

BRITISH AID FOR MEN OF LETTERS AND SCIENCE IN RUSSIA.

SIR,—We have recently been able to get some direct communication from men of science and men of letters in North Russia. Their condition is one of great privation and limitation. They share in the consequences of the almost complete economic exhaustion of Russia; like most people in that country they are ill-clad, underfed, and short of such physical necessities as make life tolerable.

Nevertheless a certain amount of scientific research and some literary work still goes on. The Bolsheviks were at first regardless and even in some cases hostile to these intellectual workers, but the Bolshevik Government has apparently come to realize something of the importance of scientific and literary work to the community, and the remnant—for deaths among them have been very numerous—the remnant of these people, the flower of the mental life of Russia, has now been gathered together into two special rationing organizations, which ensure at least the bare necessities of life for them.

These organizations have their headquarters in two buildings known as the House of Science and the House of Literature and Art. Under the former we note such great names as those of Pavlov the physiologist and Nobel prizeman, Karpinsky the geologist, Borodin the botanist, Belopolsky the astronomer, Tagantzev the criminologist, Oldenburg the orientalist and permanent secretary of the Petrograd Academy of Science, Koni, Bechterev, Latishev, Morozov, and many others familiar to the whole scientific world.

Several of these scientific men have been interviewed and affairs discussed with them, particularly as to whether anything could be done to help them. There were many matters in which it would be possible to assist them, but upon one in particular they laid stress. Their thought and work is greatly impeded by the fact that they have seen practically no European books or publications since the revolution. This is an inconvenience amounting to real intellectual distress. In the hope that this condition may be relieved by an appeal to British scientific workers Professor Oldenburg formed a small committee and made a comprehensive list of books and publications needed by the intellectual community in Russia if it is to keep alive and abreast of the rest of the world.

It is, of course, necessary to be assured that any aid of this kind provided for literary and scientific men in Russia would reach its destination. The Bolshevik Government in Moscow, the Russian trade delegations in Reval and London, and our own authorities have therefore been consulted, and it would appear that there will be no obstacles to the transmission of this needed material to the House of Science and the House of Literature and Art. It can be got through by special facilities even under present conditions.

Many of the publications named in the Oldenburg list will have to be bought, the costs of transmission will be considerable, and accordingly, the undersigned have formed themselves into a small committee for the collection and administration of a fund for the supply of scientific and literary publications, and possibly, if the amount subscribed permits of it, of other necessities, to these Russian savants and men of letters.

We hope to work in close association with the Royal Society and other leading learned societies in this matter. The British Science Guild has kindly granted the Committee permission to use its address.

We appeal for subscriptions, and ask that cheques should be made out to the treasurer, C. Hagberg Wright, LL.D., and sent to the British Committee for Aiding Men of Letters and Science in Russia, British Science Guild offices, 6, John Street, Adelphi, London, W.C.2.—We are, etc.,

MONTAGU OF BEAULIEU,	BERNARD PARES,
ERNEST BARKER,	ARTHUR SCHUSTER,
E. P. CATHCART,	C. S. SHERRINGTON,
A. S. EDDINGTON,	A. E. SHIPLEY,
I. GOLLANCZ,	H. G. WELLS,
R. A. GREGORY,	A. SMITH WOODWARD,
P. CHALMERS MITCHELL,	C. HAGBERG WRIGHT.

December 31st, 1920.

THE RISKS AFTER OPERATIONS FOR TONSILS AND ADENOIDS IN OUTDOOR CLINICS.

SIR,—The profession and the public, no less than laryngologists, should be grateful to Mr. Eric Watson-Williams for his timely article in your issue of December 11th, 1920, in which he deals with the risks run by patients who are sent to their homes within an hour or two of the operation for the removal of tonsils and adenoids in out-patient clinics.

It is a subject which has long vexed those who have charge of these operations, and its solution seems still to be far off, because the beds allotted to the ear and throat departments of our hospitals, general and special, are few, and they are always filled by what are termed "urgent" cases, which demand major operative procedures. For these beds there is always a long waiting list, and hence the "tonsils and adenoids" have to be dealt with as out-patients, and for the present I can see no likelihood that beds will be provided for them so that they can be admitted as in-patients even for forty-eight hours.

Finding myself face to face with the insuperable difficulty outlined above, and experiencing the occasional complications which Mr. E. Watson-Williams has so clearly outlined in his communication, I adopted the plan of having the following printed directions given to the patients or their parents in the hope that we might reduce accidents to a minimum.

UNIVERSITY COLLEGE HOSPITAL: EAR, NOSE AND THROAT DEPARTMENT.

Directions for the Care of Patients Before and After the Removal of Tonsils and Adenoids.

1. At 6.30 to 7 o'clock on the morning of the day of operation give the child a light breakfast of thin bread-and-butter and a cup of weak tea, but after that give him nothing whatever either to eat or drink. The patient should be at the hospital at 9 a.m.

2. A parent or responsible adult must come with the patient. Please bring a wrap to travel in and also a *clean* towel.

3. After the operation, and when you are told the child may be removed, take him straight home, put him to bed and keep him there for two days. Give him nothing to eat or drink for at least four hours after the operation, then he may have a little warm milk, beef-tea, bovril, or weak tea, and in the evening a small basin of bread and milk.
4. On the day after the operation he may have any soft food to which he is accustomed.
5. During the first twelve hours following on the operation he may be sick and bring up some blood which has been swallowed, but if he bleeds from the nose or mouth without vomiting, give teaspoonfuls of iced water every two or three minutes for an hour. Should this fail to check the bleeding bring the child to the hospital or send for the nearest doctor.
6. Keep the child indoors for four days after the operation and avoid exposing him to bad smells and infection from people suffering from fever of any kind or from "a cold in the head."
7. Patients operated upon should attend the following week for examination.

These directions have been in use in my department for some fifteen years, and I have no shadow of doubt that they have had an excellent effect in reducing the number of avoidable complications after the removal of tonsils and adenoids.

It is in the hope that such "directions" may be useful to others that I have asked for them to be printed with this note. Incidentally I should like to add that:

1. No patient is operated upon as an out-patient unless he lives within a radius of three to four miles from the hospital. Beyond such a distance the patient waits his turn for admission as an in-patient, and is kept for at least forty-eight hours.
2. All tonsils are enucleated by one of the many methods employed for that operation.
3. No patient is allowed to leave the operating table until the tonsillar recesses have ceased to bleed. The majority of the cases of so-called "secondary haemorrhage" are really continued haemorrhage—that is, bleeding which was not checked at the time of operation.
4. Each patient is kept at rest in suitable cubicles for three to four hours before he returns to his home.

Under no consideration would I consent to operate on a patient in my own house and send him (or her) home in a car or carriage.—I am, etc.,

HERBERT TILLEY,
Surgeon, Ear and Throat Department,
London, W., Dec. 26th, 1920. University College Hospital, London.

SIR,—I am much interested in the letters which have appeared recently in the JOURNAL on the above subject. That it is time that something is done in the matter there can be no doubt.

In this hospital no case is allowed to leave after operation if there is any sign of distress or of haemorrhage. The parent is warned to put the child to bed on arrival home and not to allow it out of doors for two days in the winter time. If there are any active conditions which are due to the presence of the tonsils and adenoids the case is taken into the hospital.

Sir William Milligan's remarks as to operations in consulting rooms are only too true. Until the public realize that the practised surgeon is the proper person to perform operations, I fear the consulting room will still continue to be used in this unwarranted manner.—I am, etc.,

J. A. GIBB,
Surgeon, Kent County Ophthalmic Hospital for Diseases of the Eye, Ear, Nose and Throat.
Maidstone, Dec. 26th, 1920.

THE CONFERENCE ON VOLUNTARY HOSPITALS.

SIR,—I was greatly interested in your report of this conference. This is how it struck me:

Mr. Bishop Harman moved a resolution "of belief that the voluntary method of maintenance and staffing of the voluntary hospitals of the country is to the advantage of the public, of medical science, and of the medical profession." He only expressed pious opinions. He said, "Freedom was a necessary condition to the gathering of the best fruits of medical experience and practice." Freedom from what? Supposing the hospitals were State supported, and managed by a committee partly elected and partly co-opted, such as the Insurance Committee, what freedom would be lost? Let him answer. He yearned for charitable hospitals and necessitous patients, and doctors receiving no direct monetary emolument. He forgets that citizens want citizen hospitals, desire their doctors to be adequately paid, and the work done to be as efficient and up-to-date as possible. He suggested that it would be a distinct loss to the wealthy if they had no "charitable objects" to patronize.

Sir Henry Davy wanted a wage limit for patients, with its accompanying inquiries. His idea seemed to be turning the voluntary hospitals into charitable nursing homes, to be run by the doctors and the dispensers of charity, not without profit to the doctors. I would like to ask Sir Hamilton Ballance to state his reasons why the doctors should not be paid for services rendered. Dr. W. S. Dickie is only anxious that the doctors should not be paid.

Dr. Astley Clarke said the primary meaning of a voluntary hospital system was a system free from bureaucracy. What objection has he to a citizens' hospital, to which every citizen would have the right of admission, in which the doctors might be adequately paid for their work, and the majority of their committee consist of their own elected representatives?

Dr. Bolam hit the nail on the head when he said that many of the hospitals were run on the dispensary system, the only difference being that the doctors were not paid. Mr. Bishop Harman said it was because of the flavour of voluntaryism that these hospitals were sought out by the State or municipality to perform special services—for example, the treatment of venereal disease. Does he really believe that? Up to last year I was a town councillor. We attached the venereal clinic to the local hospital. But I never heard a word about this flavour. All the town council thought of was how to get the work done most efficiently. The equipment and conveniences were at the local hospital, and so was the experienced doctor, whom they were willing to pay to do the work efficiently. Mr. Harman ingenuously confessed he could not defend voluntaryism on logical grounds. He moved a resolution in favour of accepting State contributions, without any proportional control. Is he aware that this is the age of democracy?

May I also suggest that, as was discovered in Wigan, if the workers practically find the income for the hospital they will demand proportionate control? If the insurance companies do the same they will make the same demand. I may say that it was found impossible to establish a system of almoners in Wigan; the working man will not have it. Then the question arises, if money is to be paid by Insurance Committees, are they to be adequately represented on the boards of management? Then, finally, let me ask, in the words of Mr. A. E. Morison, why should it remain in existence—"that the only charitable part of the undertaking was the work of the medical and nursing staff"? Will some of the leaders of the profession at the meeting enlighten the public on this curious point: Why does the medical profession desire to do the staffing of hospitals without remuneration?—I am, etc.,

FERDINAND REES, M.D.,
Honorary Consulting Physician, Royal Albert
January 3rd. Edward Infirmary, Wigan.

VENEREAL DISEASE PROPHYLAXIS.

SIR,—Though loath to intervene in the correspondence on the prophylaxis of venereal diseases, I feel that Dr. Bayly's letter in your issue of January 1st calls for a brief comment.

He appears to misunderstand completely the ethical objection to the propaganda of the Society for the Prevention of Venereal Disease. It is this—that the broadcast issue of their instructions *implies a sanction to immorality on the part of the community*, and that the logical issue of their teaching, namely, the constant carrying of a prophylactic outfit, must act as a continuous incitement to seek opportunities for its use.

But apart from this ethical objection there is the practical one, that the balance of available evidence is against the efficacy of this form of prophylaxis. Though official figures are not yet published, it is widely known that the incidence of venereal disease among our troops on the Rhine has reached an almost incredibly high figure. The reasons for this are doubtless complex, but the important fact from the point of view of the present controversy is this—that this has occurred in spite of the free supply to these troops of various prophylactics (including the much vaunted "permanganate") and an intensive campaign of instruction in their use.

In the face of this evidence Dr. Bayly's heroics regarding the iniquity of withholding this "scientific" knowledge from suffering mankind appear rather futile.—I am, etc.,

London, W., Jan. 1st. OTTO MAY

SIR,—In your issue of January 1st Dr. J. Lorimer Hawthorne objects to the note by the Medical Women's Federation on self-disinfection on the grounds that it gives a wrong impression of the aims and methods of the Society for the Prevention of Venereal Disease. She suggests that the writers of the note to which she objects should have verified the accuracy of their information. That information is derived from the annual report for 1920, and from the speech of the president of the society. It is as follows:

"Therefore we are going to take every step that we can in order to ensure that all boys and girls, men and women in the United Kingdom shall have access to the latest scientific knowledge with regard to immediate self-disinfection."

Again:

"There are twelve towns which have already given instructions that the inhabitants shall be instructed in immediate self-disinfection."

Boys, girls, men, women, inhabitants!

Nothing in any of the public speeches of the agents of the Society for the Prevention of Venereal Disease, nor in their numerous communications to the press, nor in any of their published propaganda has, as far as I have seen or heard, given the public any reason to think that the aims and methods were anything other than those described by their president.

Their ideal, such as it was, appeared to be consistent. The Medical Women's Federation merely pointed out that in the case of those who most needed and deserved the promised protection—young girls and young married women—it would be almost bound to fail. Surely Dr. Hawthorne could do better in support of the organization that she champions than to characterize its aims as "unjustifiable and revolting"—for that, in effect, is what she does.

Dr. Hawthorne also considers the instruction of young boys and girls as "unjustifiable and revolting," although, mainly as a result of the work of her society, the boys of Manchester (and, for aught I know to the contrary, of other towns) can learn all that men can learn in the public lavatories.

As regards the "Directions for Women" (which the Medical Women's Federation has not yet criticized), it is interesting to learn that they should be known as "Directions for Prostitutes." Yet how, in view of the title, and in view of the presidential exposition of the society's aims, were the Medical Women's Federation to know that?

It turns out that instead of being an organization for safeguarding the young beginner, or all boys, girls, men, and women, the Society for the Prevention of Venereal Disease only proposes to apply its benefits to those who resort to prostitutes. The advertisement of its methods as new and scientific will, however, not greatly appeal to those who recognize a very old nostrum in a hardly newer setting. Nor is the public likely to wish to pay for this propaganda one moment after it understands its true meaning.

I put it to Dr. Hawthorne that the noble profession of medicine does not exist in order to fold its hands and say piously that what must be, must be. It is here, rather, to find out and to point men to what they are capable of becoming, and to the real and full enjoyment of *all* their instincts.

As regards the "Directions for Prostitutes," I ask Dr. Hawthorne to fix her medical imagination on a mucous surface which normally cleanses itself fairly effectively, and which tolerates greasy applications indifferently. Cover it with several layers of a very adhesive grease. Mix on this a layer of decomposing discharges and other débris. Repeat the layers several times. Imagine this in the majority of prostitutes who are poor women, imperfectly trained in cleanliness, careless, disbelieving in inunction—often afraid of it. Note the foul and dangerous surface that ensues. Consider this as a suitable surface for conveying "mediate" contagion. Let the patient douche herself with warm permanganate. Observe that the filthy surface is not removed thereby. Can any thinking person believe that such a "method" deserves the name of "scientific"?

Lastly, my experience is that numbers of prostitutes, amateur or professional, do have children. Some, no doubt, do away with their children, some are bad mothers, but many are cured of their abnormal habits, and redeemed by a child. So that contraceptives are not entirely irrelevant to this question. Everyone is entitled to know the effects of drugs she is advised to use.—I am, etc.,

A MEMBER OF THE MEDICAL WOMEN'S FEDERATION.

January 4th.

THE NAVAL MEDICAL SERVICE.

SIR,—The six medical officers are to be congratulated on their letter in the JOURNAL of December 11th, 1920. There are, however, some fundamental points to which I think it desirable to call attention in our efforts for reform.

Leadership.—The natural leader is the Director-General, but seeing that he has no seat at the Board of Admiralty the leadership must temporarily be a committee of the British Medical Association. Suitable leaders should be elected; at present very few of us know how the committee is formed. It is well known to most of us that the minor grievance in connexion with coroners' fees took seven years to settle.

Publication of the Durnford Report.—It is understood that this report contains an excellent basis of reform. An effort should be made to have it published. It could be published in the *Naval Medical Journal* without expense to the Admiralty. The ceaseless reiteration of grievances is futile. Action is the fashion of the day.

Financial.—Possibly the nation cannot bear the strain of increased allowances, as hinted at in the above mentioned letter; a solution, however, might be found in rear admirals and captains pooling their allowances with surgeon rear admirals and surgeon captains respectively.—I am, etc.,

ACTION.

December, 1920.

*** The Naval and Military Committee consists of two members appointed by the Representative Body, two by the Council, together with the representatives on the Council of the Royal Naval Medical Service, the Royal Air Force Medical Service, the Army Medical Service, and the Indian Medical Service.

MUSCLE RE-EDUCATION IN INFANTILE PARALYSIS.

SIR,—In reply to Dr. Mackay's letter in your issue of December 18th, I must repeat that I am still quite unable to understand how Dr. Mackay still insists that splinting and physiological rest *per se* form an integral portion of muscle re-education; his definition of the latter commences with the words "the gradual stimulation." Splinting and physiological rest cannot be regarded as a "gradual stimulation," though they may facilitate such stimulation applied subsequently by other methods.

The proof that splinting and physiological rest are not essential for recovery from infantile paralysis is a clinical one. One knows there have been hundreds and hundreds of cases in which both legs were affected who have never sought medical aid, but who have as soon as possible—often urged by parents—tried to walk again. In nearly every case such patient, upon discovering that one leg was more useful than the other, used it more, frequently ending up by employing it almost to the entire exclusion of the other. Yet in spite of the fact that the more useful leg was doing practically double work, and that it commenced to do so within a few days of the onset of the disease, that leg was the one to make a rapid and frequently perfect recovery, while the other leg, originally the less useful one, only showed feeble signs of recovery. Now if splinting and physiological rest were essential for improvement these cases would run a different course; the leg that was at first more useful would rapidly become weaker, while the other leg would soon catch it up and progress quicker. This, however, is hardly ever the case.

Nor can I agree with Dr. Mackay's statement that any treatment not based on the principles he advocates is mainly responsible for failures with infantile paralysis. I consider that they are due to other reasons, the two chief being: (1) that a vast amount of so-called Swedish treatment is given by masseurs and others who are totally incompetent to apply it; (2) the valuable method of nerve stimulation by the so-called "nerve frictions" (according to the methods of H. Kellgren) are to the profession as yet almost an unknown factor in mechano-therapeutics.

In any case I think that this controversy has lasted long enough. I suggest that we let theorizing alone, and that Dr. Mackay let us have his results. If they show an improvement as compared with the correctly applied genuine Swedish methods I shall be delighted to acknowledge the fact to Dr. Mackay. If they do not, doubtless he will be equally pleased to do so to me.—I am, etc.,

London, W., Dec. 18th, 1920. EDGAR F. CYRIAX.

ANGIO-NEUROTIC OEDEMA TREATED BY INJECTIONS OF HORSE SERUM.

SIR,—Dr. T. Wood Locket's letter in your issue of December 18th, 1920, on the therapeutics of normal horse serum, prompts me to send you a note of the results of its exhibition in a case of angio-neurotic oedema which lately came under my care.

The patient, a coal-dealer, had previously been seen by my partner and also by a neighbouring practitioner, and had had, I believe, six attacks. One of these was so severe, and the tongue and neck so greatly swollen, that, as he appeared to be in danger of asphyxiation, my partner sent him to St. Bartholomew's Hospital, where he was admitted and kept under observation for several days.

I was called to his house on September 6th, and found him in bed with greatly swollen face, neck, tongue and lips. The lower lip was fully one and a half inches thick, and the features almost unrecognizable. Previous treatment having proved futile, and, influenced by a consideration of its antitoxic and thrombin-producing properties, I decided to try hypodermic injections of normal horse serum. I gave 5 c.cm. that evening, and at intervals of forty-eight hours 5 c.cm. and 10 c.cm. The swelling subsided rather more slowly than usual, and the patient was about at the week end and went to the seaside on Sunday. There he developed a profuse erythematous rash covering the body and limbs, and came home three days later. The rash soon disappeared, except over the sites of inoculation on the arms, where it became eczematous and persisted for several weeks.

This patient remained under my care for nine weeks, during which time he had one slight recurrence of the oedema, involving the eyelids and subocular tissue. Up to the present he has had no further attacks and remains quite well. In view of the fact that prior to receiving the horse serum injections he had seven severe attacks occurring at almost regular weekly intervals, I think I can fairly claim that this treatment has proved definitely curative in the case described.—I am, etc.,

London, E.C., Dec. 19th, 1920. W. A. M. SWAN.

Universities and Colleges.

UNIVERSITY OF LONDON.

THE title of professor of pharmacology has been conferred upon Dr. F. Ransom (London School of Medicine for Women).

Mr. F. F. Burghard, C.B., has been appointed the representative on the Senate of the Royal College of Surgeons of England for the remainder of the period 1919-23, in succession to Sir Charles Ballance, K.C.M.G., C.B., M.V.O., resigned.

The first lecture arranged under a scheme for the exchange of lecturers in medicine between England and Holland will be given at the rooms of the Royal Society of Medicine (1, Wimpole Street, W.1) by Dr. J. K. A. Wertheim Salomonson (Professor of Neurology in the University of Amsterdam) on "Some Considerations on Tonus and Reflexes" at 5 p.m. on Monday, January 17th. The chair will be taken by the Vice-Chancellor of the University, Dr. S. Russell Wells. Five other Dutch lecturers will also give one lecture each, particulars of which will be announced later. The lectures, which will be delivered in English, are addressed to advanced students of the University and to others interested in the subject. Admission is free, without ticket.

A course of eight lectures on the Physiology of the Embryo, Foetus, and Newly-born will be given by Professor M. S. Pembrey, M.D., in the Physiological Theatre, Guy's Hospital, at 4.30 p.m. on Thursdays, January 13th, 20th, 27th, February 3rd, 10th, 17th, 24th, and March 3rd. The lectures are addressed to advanced students of the University and to others interested in the subject. Admission is free, without ticket. [The course of lectures arranged to be given by Mr. J. A. Gardner has been postponed.]

Applications for the post of Professor of Obstetrics and Gynaecology and Director of the Obstetrical and Gynaecological Unit at the London (Royal Free Hospital) School of Medicine for Women (salary £2,000 a year) must be received by the Academic Registrar at the University by January 15th.

Applications for the Graham scholarship in pathology, value £400 per annum for two years, founded by the will of the late Dr. Charles Graham to enable a "young man to continue his pathological researches, and at the same time to secure his services to the School of Advanced Medical Studies connected with University College Hospital as a teacher under the Professor of Pathology," must be received by the Principal Officer at the University by January 17th, 1921.

UNIVERSITY OF ST. ANDREWS.

AT a meeting of the University Court on December 18th, the Very Reverend Principal Galloway, who presided, congratulated Professor Irvine on his appointment as Principal of the University.

Mr. D. M. Grieg's resignation of the post of lecturer in clinical surgery was accepted, and an expression of recognition of his services as a surgeon was adopted.

The following appointments were made: *Lecturers in Clinical Surgery*, Mr. John Anderson, D.S.O., and Mr. W. L. Robertson, M.C.; *Clinical Surgical Tutors*, Mr. John Taylor and Mr. F. A. Brown; *Clinical Tutor in Gynaecology*, Miss Margaret Fairlie; *Lecturer in Pathology*, Mr. G. R. Tudhope; *Honorary Demonstrator in the Department of Anatomy*, Miss Edith D. Dobbie; *Assistant to the Professor of Surgery*, Mr. F. A. Brown.

The following candidates have been approved at the examinations indicated:

THIRD M.B., CH.B. (*Forensic Medicine and Public Health*).—D. A. K. Cassells, G. R. M. Cordiner, W. A. Steel.

FINAL M.B., CH.B.—Margaret J. M. Cuthbert, Jean H. D. Fleming, Mabel Hodgson, Frances L. Knipe, Margherita M. Lilley, Christian E. Little, J. B. Macdonald.

LONDON SCHOOL OF TROPICAL MEDICINE.

THE following candidates have passed the examination of this school at the termination of the sixty-fourth session, October-December, 1920:

*P. A. Buxton ("Duncan Medal"), *Surgeon Lieut.-Commander H. R. Parker, R.N., *H. G. Wiltshire, *L. C. D. Hermitte, *Major W. B. Cullen, I.M.S., *Captain C. Heppenstall, I.M.S., *R. H. Liscombe, *Captain R. E. Flowerdew, I.M.S., S. C. Bose, E. R. Kellersberger, G. V. Allen, A. A. Denham, Captain H. S. Haji, I.M.S., A. S. Paranjpe, A. D. Gupta, C. J. Caddick, Z. Khaled, P. T. Liang, A. H. Patel, W. R. Taylor, D. F. Maya, S. Somasundram, W. E. de Silva, F. V. Jacques, Miss E. B. Salter, A. M. Kirdany, A. W. Hooker, Miss E. Lombard, A. K. Moilliet, Miss M. Gore, A. R. Mehta, O. van Stenis, Miss A. Gore, J. M. McCleery, Miss D. G. D'Abreu, A. F. Abbassi, E. S. Palmer, K. Ponniah, L. M. S. Parmanand, A. S. Westmorland, E. T. Saravanamuttu.

* With distinction.

Obituary.

THOMAS H. LIVINGSTONE, M.D., F.R.C.S.EDIN., Newcastle-on-Tyne.

THE death occurred on Christmas morning, at 38, Jesmond Road, Newcastle-on-Tyne, of Dr. Thomas Hillhouse Livingstone. He was the second son of the late Dr. Thomas Livingstone of Stanhope in Weardale, who was for over thirty years in practice at Stanhope, and who occupied a very prominent position in the public and social life of the dale. Dr. T. H. Livingstone was educated at Wolsingham Grammar School and Uppingham. He then proceeded to Edinburgh University, where he graduated M.B., Ch.B. in 1899. He filled the post of house-surgeon at Rochdale Infirmary, and later carried on his father's practice at Stanhope with much acceptance till 1903. He then returned to Edinburgh for a period, and took the M.D. degree and F.R.C.S.Edin. diploma, afterwards settling in practice in Newcastle. He became an honorary surgeon to the Hospital for Sick Children, and retired from this position in 1912. He was then appointed surgeon to the Throat, Nose, and Ear Hospital, Newcastle. During later years he confined his work entirely to this special branch, to which he had always had a leaning, and in it he had the satisfaction of being able to do much good work. He held a commission in the Territorial Force, and was mobilized at the outbreak of the war. He was under orders to proceed to France when he became seriously ill, and was admitted to the 1st Northern General Hospital with the malady which eventually proved fatal. Partially recovering from this illness, he was attached to the ear and throat department of the 1st Northern General Hospital. In 1914 he was made a vice-president of the Ear, Nose, and Throat Section at the annual meeting of the British Medical Association at Aberdeen. By nature he was of a most refined and gentle disposition, a gentleman in the truest sense of the word. He was possessed in a marked degree of that innate courtesy and kindness to others which one likes to associate with the profession. He was greatly attached to his native dale, and occasional visits from Newcastle to his old home in the country always gave him the utmost pleasure. To his many friends both in Weardale and Newcastle his death at the early age of 43 has come as a great grief. His remains were interred in the old churchyard of Stanhope.

The Services.

TERRITORIAL DECORATION.

THE King has conferred the Territorial Decoration upon the following medical officers of the Territorial Force:

Lieutenant-Colonels A. W. Mackintosh, 1st Scottish General Hospital, and (Brevet Colonel) Alexander Napier, V.D., Honorary Surgeon-Colonel (Honorary Surgeon-Colonel retd. Vols.) 4th Scottish General Hospital (retired).

Majors J. F. Christie, attached 4th Battalion, Gordon Highlanders, A. C. Turner, D.S.O., attached 49th West Riding Divisional Engineers, E. L. Anderson, 2nd West Lancashire Field Ambulance, J. W. Mackenzie, O.B.E., 1st Highland Mounted Brigade Field Ambulance, A. H. Horsfall, D.S.O., attached Royal Herbert Hospital, Woolwich, and J. M. Bowie, attached 9th Battalion, Royal Scots.

Surgeon-Captain Shepherd McC. Boyd, 2nd Home Counties Brigade, R.F.A. (ret.).

DEATHS IN THE SERVICES.

Lieut.-Colonel Richard Henderson Castor, Madras Medical Service (ret.), died of pneumonia at Croydon on December 30th, 1920, aged 59. He was born on May 12th, 1861, the son of Captain John Castor, master mariner, of Cochin, took the M.R.C.S. and L.R.C.P.Lond. in 1884, and entered the I.M.S. as surgeon on September 30th, 1886. He served in the Burmah campaigns of 1887–89, receiving the frontier medal with a clasp, and in May, 1890, went into civil employ in Burmah, in which province he spent the remainder of his service (thirty years). He became lieutenant-colonel on September 30th, 1906, received extension of service for four years during the war, and retired on November 9th, 1920, only six weeks before his death. He received the Kaisar-i-Hind medal (1st class) on June 3rd, 1919.

Medical News.

THE Earl of Radnor has accepted the office of President of the Thirty-second Congress of the Royal Sanitary Institute, to be held at Folkestone from June 20th to 25th, 1921.

SIR JAMES KINGSTON FOWLER will deliver an address entitled "The Colonial Medical Service" at the Middlesex Hospital Medical School on Thursday, January 20th, at 3 p.m., when the Earl of Athlone will preside.

THE Medical Branch of the Board of Education has been transferred from Cleveland House, St. James's Square, S.W.1, to Bridgewater House, Cleveland Square, S.W.1 (telephone 3410 Gerrard).

WE have received from Dr. Ernest W. Jones, the Honorary Secretary, a copy of the programme of the newly formed Birmingham Medico-Psychological Society. The President is Lieut.-Colonel A. W. Moore. Meetings for the discussion of papers are held monthly on Wednesday afternoons.

DR. OLIVER K. WILLIAMSON, physician to the City of London Hospital for Diseases of the Chest, has been appointed Professor of Medicine in the Medical School of the University College, Johannesburg.

A PROPOSAL has been made to install new *x*-ray apparatus and equipment at the Bolingbroke Hospital, Wandsworth, as a memorial to the late Dr. Cecil Lister, whose early experiments with *x* rays were carried out in that institution.

CAPTAIN W. E. ELLIOT, M.P., Dr. A. Mearns Fraser, Dr. Jane Lorimer Hawthorne, Surgeon Vice Admiral Sir James Porter, K.C.B., K.C.M.G., and Mr. A. H. Tubby, C.B., C.M.G., F.R.C.S., have recently joined the Executive Committee of the Society for the Prevention of Venereal Disease.

AT the meeting of the Medico-Legal Society to be held at 11, Chandos Street, W.1, on Tuesday, January 18th, at 8.30 p.m., Dr. H. Gibson Sutherland will read a paper on "Medical evidence in the Stanton murder trial."

A SPECIAL general meeting of the West London Medico-Chirurgical Society will take place in the society's rooms at the West London Hospital on Friday, January 14th, at 8.30 p.m., in order to discuss the Medical Consultative Council's interim report on the future provision of medical and allied services. Medical practitioners are cordially invited to attend and take part in the discussion.

COURSES of lectures on infant care, to be held in London and at Worcester, have been arranged by the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy; an elementary course in London has been arranged by the association in conjunction with the National Society of Day Nurseries. Particulars may be obtained from Miss Halford, Secretary of the National Association for the Prevention of Infant Mortality, 4 and 5, Tavistock Square, London, W.C.1.

IN the Psychological Department, University of London, King's College, Strand, W.C.2, Dr. William Brown will give a course of ten lectures on psychopathology on Tuesdays, at 5.30 p.m., during the Lent term, commencing on Tuesday, January 18th. These lectures are open to medical students and medical practitioners without fee or ticket.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin:* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

INCOME TAX.

"PUZZLED" asks: "Should dividends from war loan, which are income tax free, be included as assessable income or not?"

*** Our correspondent presumably refers to the tax-compounded 4 per cent. war loan issue. Interest thereon should not be "returned for assessment" on page 2 of the ordinary form of declaration, but should be included in any statement of total income at the gross equivalent of the net amount received—that is, at £*x plus* three-sevenths of £*x*. It will not be assessed to income tax if its precise nature is shown, and is not exempt from super-tax.

"R. P. R." has been applied to for payment of income tax assessed on him for the year 1915. Can he now claim to have the assessment adjusted?

*** The legal position is that the claim should have been made by April 5th, 1917, but we anticipate that objection would not be raised by the authorities to the claim being put forward now in view of our correspondent's absence on military service and of his statement of the actual income of the year made through Holt's Agency, which might reasonably be regarded as an intimation of claim. We suggest that he might write in this sense to the local inspector of taxes. As regards the annuity, a claim can be put in by the recipient on or before April 5th, 1921, in respect of the three years ending April 5th, 1920, but not as regards earlier periods.

LETTERS, NOTES, ETC.

ARTIFICIAL LIMBS.

CAPTAIN H. H. C. BAIRD, D.S.O., in the course of a letter which we have not space to print in full, writes:

Whilst welcoming your leading article on artificial limbs as a means of keeping this vital problem before the public eye, I regret that you should have thought it either desirable or necessary to have introduced the personal factor in your reply. To say that we, who are interesting ourselves in the welfare of the limbless, are the dissatisfied, is absurd, if for no other reason than that we happen to be the highly satisfied who have tasted the joys of wearing an artificial limb worth having, and our only desire is that the same joys may be brought within the reach of each and all of the thousands of others who have suffered a similar affliction. Then, again, you represent that we hold a brief for one particular make of limb, as if we had some axe to grind. This is not only absurd, but a most unfortunate misrepresentation of our case. What we have asked for is an impartial committee, on which

limbless men themselves shall have a fair and reasonable representation, which shall investigate every phase of the problem of artificial limb supply. Also, as a further proof of our impartiality, it may interest you to know that we, the "mouthpieces of the dissatisfied," as you term us, are now, at the request of the Ministry of Pensions, putting their standardized light metal model to practical tests. But this impartiality on our side also looks for justice—or is it favour?—to all makers of artificial limbs, whether they belong to the British Association of Limb Makers or not. On this account we should expect the impartial committee, when set up, to investigate all that has passed between Messrs. Desoutter Brothers and the Ministry of Pensions during the last two years, and exactly how far Mr. Desoutter himself, the pioneer of light metal legs, with which type all other other makers are now experimenting, has been consulted in the development of the Government model. Such an investigation would throw a little light on to such matters as cost, methods, and delay; and exactly to what extent the interests of the wearers of artificial limbs, to say nothing of the taxpayers, have been studied in the past and how these can best be studied in the future. Presumably also this committee would investigate the results of the practical tests of light artificial legs carried out by the British Red Cross many months ago, which up to the present have never yet seen the light of day. In regard to the other points raised in your article relating to curvature of the spine and weight, etc., I do not propose to deal with these in detail. Obviously the only way of arriving at a true solution of this problem is not through the medium of leading articles or letters in the press, but by a thorough and unbiassed investigation of the practical experiences of wearers of artificial limbs themselves, such as we have asked for. No doubt you have concrete evidence in support of your statement that "it is certain that a very large number, and probably the great majority, of pensioners are well satisfied with the limbs supplied by the Ministry of Pensions, but they do not feel called upon to write to the daily papers and say so." All I ask is that your evidence may be placed alongside ours, together with that of any others whose evidence may be called. It will then be left to that committee, not to you nor to us, nor the limb-makers, nor the surgeons, nor the Ministry of Pensions, to decide in co-operation with limbless men themselves whether the present state of affairs is satisfactory or not; and whether it has been "disgruntlement" or "right" which has caused us to raise our voice.

TRIPLETS.

DR. H. WESSEN HUSBANDS (Taunton) writes: The following cases, which occurred in my practice last year, may possibly be of some interest to certain members of the profession from a statistical point of view. According to the authorities, triplets occur in about 1 in 7,000 to 10,000 labours; the children are generally small, poorly developed, and often do not survive their birth many days. In March I was called by the district nurse to Mrs. S., aged 27, first pregnancy. She was delivered of two girls and a boy.

Weight of first girl	6 lb.
,, of second girl	6½ lb.
,, of boy	3½ lb.

All are alive and doing well. In October I was called to Mrs. T., aged 37, seventh pregnancy. She was delivered of three boys.

Weight of first	8 lb.
,, of second...	7½ lb.
,, of third	7 lb.

All are alive and doing well. Unfortunately in the last case the mother developed puerperal insanity at the end of the second week, and was removed to the asylum, where she died three weeks later. It certainly must be a rarity for one medical practitioner to have two cases of triplets in six months.

EMETINE IN BILHARZIASIS.

IN our issue of October 30th, 1920, Dr. Andrew Balfour, in response to an inquiry by Dr. Esser, of Rustenburg, Transvaal, gave a list of references to papers describing the use of emetine in bilharziasis. Dr. Balfour pointed out that the drug had been given a considerable trial, but questioned whether the evidence yet adduced warranted its substitution for antimony. He referred, among other writers, to Dr. Diamantis of Cairo, from whom we have received a letter dated December 4th, 1920. In the course of it he says that he was the first to employ a radical treatment of bilharziasis, by recommending emetine hydrochloride, by pointing out the indications for its use, and by stating the suitable dose. The value of the treatment has, he says, been proved, and the results are not to be despised; it is being used by many Egyptian practitioners every day. "There remains, however," Dr. Diamantis continues, "the question of the toxicity of emetine given intravenously. Is it really worth while, in order to treat bilharzial haematuria, to run the risk of producing the toxic effects of emetine given intravenously? In my earlier publications I stated clearly the indications for adopting this treatment, the dose which should be used, the accidents to be feared and the means of preventing them, and gave a detailed description of the technique. I have injected into the vein of an adult in one dose 0.12 gram of emetine; I have never had any untoward effects. . . . The method of administration is within the competence of any practitioner who knows how to give an intravenous injection. I employ the ampoules of emetine as supplied by Clin, Burroughs Wellcome, or Parke Davis, without the addition of saline solution. It is not necessary to take the patients into hospital. My experience has satisfied me that ten to twelve injections, at intervals of three to five days, will suffice for the radical cure of the adult, the amount of emetine given being from 0.85 to 1.05." In reply to Dr. Esser, Dr. Diamantis states that he has had no experience of the intravenous injection of emetine in amoebic dysentery; bilharzial haematuria, he points out, is only a local affection, the general condition of the patient being satisfactory, whereas dysentery, being a general disease, the patient is in a bad condition, and the myocardium, suffering already from the poison of dysentery, is not in a condition to resist poisoning by emetine in addition. A great advantage in the treatment of bilharzia is, Dr. Diamantis considers, that it can be given by hypodermic injection as stated in a communication made by him to the Institut Egyptien in 1916. Dr. Diamantis goes on to note—what he considers the remarkable fact—that tartar emetic has an effect not only in bilharziasis, but also in kala-azar, which is a leishmaniasis, and that emetine acts not only in bilharziasis, but also, as observed by Dr. Photinos of Athens, when injected locally in oriental sore, which again is a leishmaniasis.

DR. ESSER writes from Rustenburg, Transvaal, under date November 26th, 1920, to thank Dr. Balfour for his reply. Intramuscular injection, while a much simpler procedure than intravenous, must, Dr. Esser points out, be done with strict aseptic precautions to avoid the risk of abscess, and as emetine is poisonous and has a cumulative action, it is important not to give more than is absolutely necessary to cure. The advantages of the intravenous route are, in Dr. Esser's view: (1) That the pain, swelling, and discomfort, which often follow subcutaneous or intramuscular injection of emetine, are absent or very slight; (2) a smaller quantity of the drug will be needed. He thinks that the intravenous, being the more direct route, will prove the more effective and certain method of cure. Facilities can hardly, he says, anywhere be lacking for making a little normal saline solution, boiling it, and dissolving in it one or more tablets of emetine. At the same time he suggests the use of the sealed glass tubes (such as the ampoules mentioned by Dr. Diamantis).

ONE WAY OF SELECTING A HEALTH RESORT.

DR. JOHNSON SMYTH (Bournemouth) sends us the following note: A patient, 60 years of age, informed me he had decided on permanently residing in Bournemouth. He gave as his reason that since retirement he has spent considerable time in visiting the graveyards from Deal to Land's End, and he made the remarkable discovery that he found on the tombstone records a far higher percentage of persons dying at 81 and over in Bournemouth than elsewhere. "That's good enough for me" was his final remark.

CORRECTION.

DR. G. C. GARRATT'S letter last week (p. 31, col. 1) contains two errors which were uncorrected because time did not allow us to send him a proof. The word "discussion" in line 14 should be "dissension" and "War Pensions Committees" should be substituted for "county councils" in the 12th and 13th lines from the foot of the column.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 33, 34, 36, 37, 38, and 39 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 35 and 36.

THE following appointments of certifying factory surgeons are vacant: Dalmellington (Ayr), Fishguard (Pembroke).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line...	0	1	6
Whole single column (three columns to page)	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.